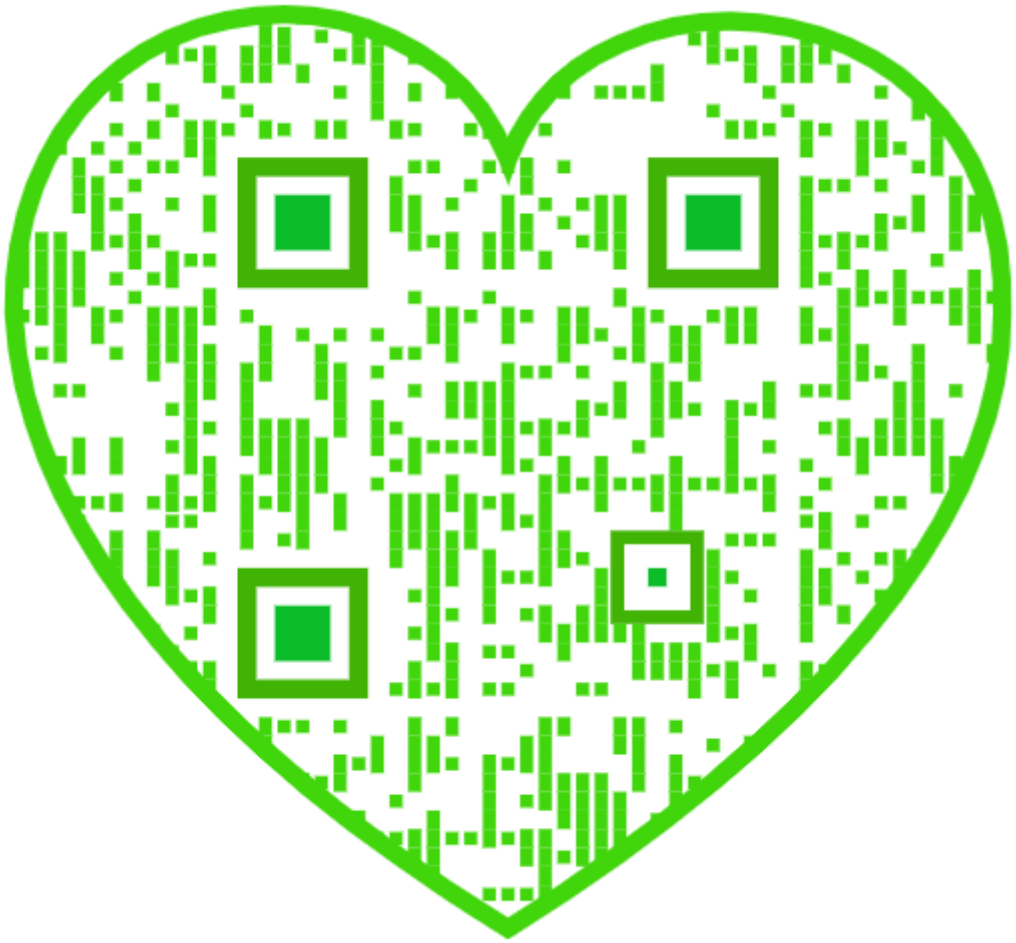

Home and School Sewing

BY

FRANCES PATTON

TRAINING TEACHER, DEPARTMENT OF SEWING IN
THE PHILADELPHIA NORMAL SCHOOL

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UNIV. OF CALIFORNIA

PREFACE.

SEVENTEEN years ago sewing was introduced into the Philadelphia Public Schools. During these years Miss Kirby, Assistant Superintendent of Schools, has conducted monthly meetings of the teachers of sewing, in which were freely discussed methods of making and teaching the various seams, and all matters pertaining to the subject.

In order that the best method of instructing the children in classes might be secured, experiments were made and reported upon, the teachers being encouraged to express their difficulties and tell their successes; thus placing the experience of the entire force at the disposal of each individual.

The lessons in this book are mainly the outgrowth of the practical suggestions mentioned above, tested and worked out many times by the author in the schools under her charge, together with the careful study of books on the subjects treated.

Special acknowledgment is due to Miss Helen Fairchild Kinsey for the assistance she has given in illustrating the book.

F. P.

Philadelphia, October, 1901.

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Home and School Sewing.

Home and School Sewing.

I. PREPARATION FOR SEWING.

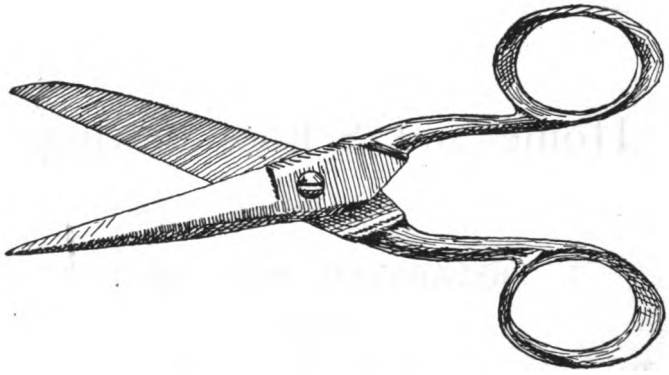
Cutting.

Before learning to sew, it is necessary to know how to cut. A garment must be first cut in shape before it can be sewed together. In a sense, the cutting is as important as the sewing; for if the lines of a pattern are not exactly followed, the edges of the seams will be rough and ragged, and the result will be unsatisfactory, no matter how accurate the sewing.

Materials.—The following materials are required for a lesson on cutting: Scissors; a tape measure or ruler; manila paper.

The implement used in cutting is a pair of scissors. Scissors consist of two blades, one of which is narrow and pointed, and the other wide and blunt, fastened together by a screw or pin on which they move. See Illustration No. 1. They should be held in the right hand, preferably with the pointed blade down. The thumb should be thrust through the upper handle and the third finger through the lower, while the first and second fingers should support and guide the tool in cutting.

A tape measure is a strip of painted tape, usually one



ILL. 1.—Position of Scissors when Cutting.

and a half yards in length, divided up into inches and the parts of inches. As an intimate knowledge of the tape measure is required to perform the work outlined in the following pages, pupils are urged at the outset to learn how many inches are in a yard, a half yard, and a quarter yard, and what fractional parts of a yard are represented by 27, 18, 9, 4½, 2¼ inches.

In learning to cut, manila paper may be used instead of cloth and a ruler in place of a tape measure.

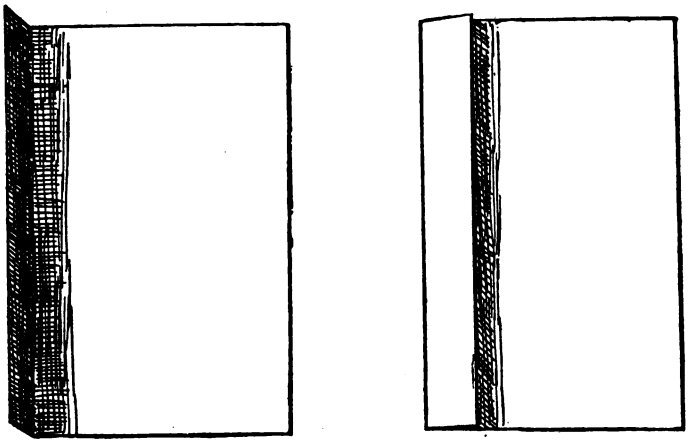
1. Place the long side of the paper parallel with the front edge of the desk.

2. Double over, towards you, a strip one inch wide.

3. Press the edge of the fold so that it will form a crease.

4. Open the fold out and feel both the inside and outside of the crease. See Illustration No. 2.

5. Place the paper flat on the desk with the inside of the



ILL. 2.—The Inside and Outside of the Crease.

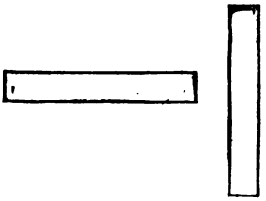
crease up. (This prevents the scissors from slipping to one side in cutting.)

6. Cut along the crease, cutting the entire length of the blade. (Short cuts result in a ragged edge.)

7. Hold up the cut edge, first vertically and then horizontally to see if it is straight and true. See Illustration No. 3.

8. Crease the paper in half and quarter-inch strips, following the directions given above.

9. For practice, cut a strip of paper into fringe, making the threads equal in width.



ILL. 3.—Straight and True. (Strips one inch wide.)

Position While Sewing.

Before beginning to sew, attention should be given to the posi-

tion of the body. Pupils should sit well back in the chair, with heads erect and both feet resting on the floor; the elbows should be held at the sides of the body, and the hands in such a position that the work will be at the proper distance from the eyes.

To Thread a Needle.

A needle is a small, slender, pointed tool usually of tempered steel, containing an eye to carry a thread through a fabric in sewing.

Measure the thread across your chest for the length. Adopt the tailor's method of using short strands for quick work.

Always use the end of the thread just broken from the spool to thread the needle. If the end of the thread is blunt, thin it out with the blade of the scissors and then twist it; if it has a long, thin fibre, cut it off.

MATERIALS.—The materials required for this lesson are: A No. 3 or 4 needle; No. 40 cotton; a pair of scissors.

The Needle Drill.

1. Hold the needle up in the *left* hand.
2. Hold the thread up in the *right* hand.
3. Put the thread *towards* the eye of the needle.
4. Pass the thread *through* the eye of the needle.
5. Carry the thread over.
6. Make a knot.
7. Hold the needle up in the *right* hand threaded. See Illustration No. 4.

ILL. 4.—THE NEEDLE DRILL.

To Make a Knot.

A knot is used only in basting, in gathering, in the various stitches used on flannels, and sometimes in sewing on buttons.

1. Hold the needle threaded in the *right* hand.

2. Take the end of the thread between the thumb and the first finger of the *left* hand.

3. Stretch the thread tightly, wind it around the top of the first finger, and cross it over the end held between the finger and thumb.

4. Then roll the first finger down the thumb, carrying the thread with it about half an inch, and with the nail of the second finger push the knot thus formed to the end of the thread.

5. If there is an end of thread, cut it off.

How to Use a Thimble.

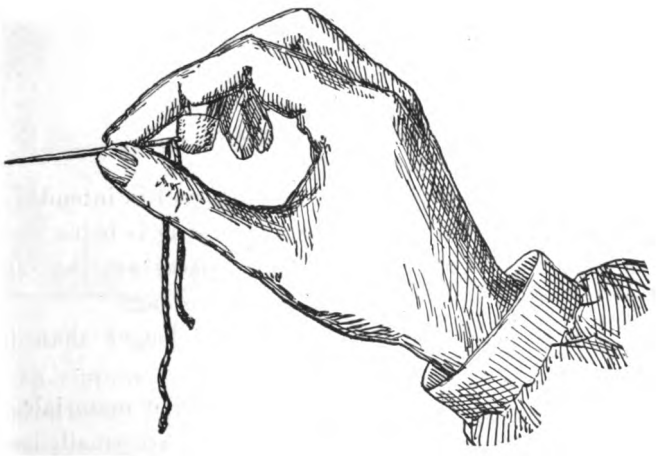
A thimble is a cap of metal worn on the end of the finger in sewing to push the needle through the material.

A thimble to fit comfortably should touch the top of the finger, but should not be loose enough to fall off.

MATERIALS.—The materials required are: A small piece of muslin, in addition to those required in the needle drill.

Thimble Drill.

1. Raise the right hand, holding the needle between the thumb and first finger; bring the thimble finger (middle finger of right hand) into position. Let the eye of the needle rest against the thimble. See Illustration No. 5.



ILL. 5.—The Needle and Thimble in Position.

2. Lift the left hand with the muslin held over two fingers and push the needle into the muslin; make a stitch.

3. Draw the thread through with the thread over the little finger.

4. Do not use a knot in this exercise.

NOTE.—It is impossible to give the number of the needle and cotton to be used in the various seams, because as the work advances materials change and, of course, needle and thread must change with them.

II. BASTING.

Basting is a *preparation* for sewing, and is intended to keep the material in place while the sewing is being done.

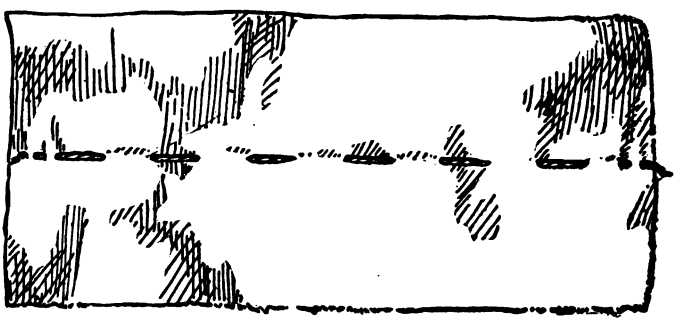
In even basting, the stitches and spaces are the same length. It is sometimes called equal basting.

In uneven basting, the stitches are longer than the spaces.

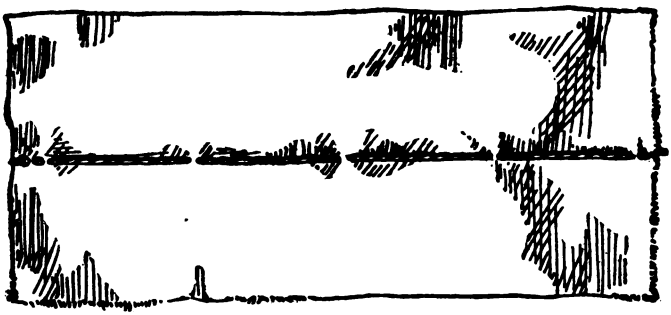
In basting two pieces together, keep the materials, if they are large, flat on the table; if they are small, baste over two fingers.

Before sewing on trimmings, baste them in place very carefully so that there will be neither fullness of trimming nor drawing of the fabric.

Work is never properly finished until the basting stitches are ripped out.



ILL. 6.—Even Basting.



ILL. 7.--Uneven Basting.

In ripping the basting out of velvet or cloth, cut the thread every few inches, as the pulling out of a long thread leaves marks.

In learning to baste, soft cotton of a contrasting color is advisable, as it is easier to take out and to distinguish from the ordinary sewing.

MATERIALS.—The materials required in this lesson are: A piece of unbleached muslin 12 inches square; a No. 7 sharp needle; No. 50 cotton (red); scissors; a ruler or tape measure.

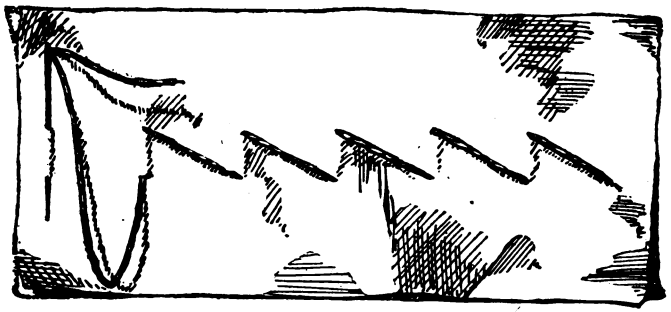
Even Basting.

1. Examine and describe the sample furnished you by the teacher.

2. Make a drawing of it on the blackboard. See Illustration No. 6.

3. Find the length of the stitch and space by measuring the stitch on the sample.

4. Hold the material over the first two fingers of the left hand.



ILL. 8.—Basting on Lined Skirts, etc.

5. Begin at the right-hand side of the material.
6. Begin with knot and backstitch.
7. Make stitches and spaces one-fourth of an inch.
8. Continue basting until work assigned is completed.
9. Fasten the thread securely by a backstitch. This is sometimes called a fastening stitch.

Uneven Basting.

This basting forms a guide line in sewing just as the blue lines on paper guide us in writing.

1. Hold the material over the first two fingers of the left hand.
2. Begin with a knot and backstitch.
3. Make the stitch three-fourths of an inch long.
4. Make the space as short as possible.
5. Fasten with one or two backstitches. See Illustration No. 7.

Basting Used in Dressmaking.*

In basting skirts with lining, or garments where large spaces are to be covered, a slanting stitch may be used. In this kind of work, point the needle towards you and take as large a stitch upon it as possible. This is sometimes called tacking. In doing this work, keep your materials flat on the table. See Illustration No. 8.

*For advanced work.

III. HEMMING.

A hem is a fold turned down twice, used to strengthen and finish the material on which it is placed.

The two turns of the hem are called the fold of the hem.

A notched card may be used as a guide in turning wide hems. This is called a measure or gauge.

Exactness and uniformity in the size, slant, and space between the stitches are necessary to insure beautiful hemming.

While you are learning, hems should be made across the muslin.

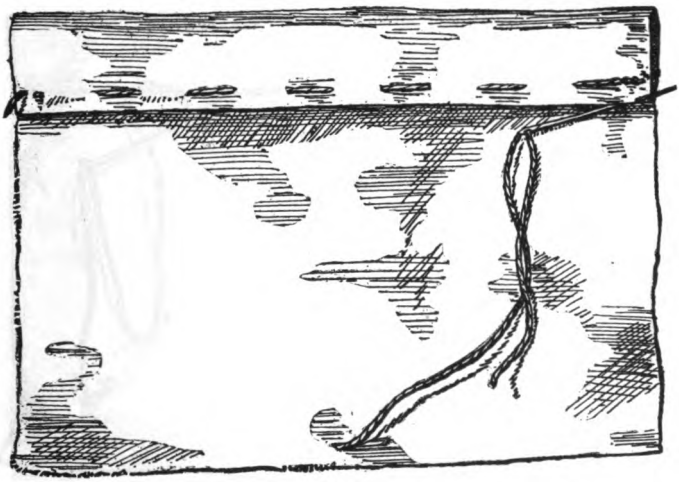
The turning of the hem may be practiced on paper before making it on muslin.

MATERIALS.—The materials required for this lesson are: A piece of muslin (12 inches square); "ground downs" or "between" needles; cotton of a suitable number (No. 50 red preferred); scissors; a ruler or tape measure.

Folding and Basting of the Hem.

1. Hold the muslin up with the selvage edge at the right side. Pupils without a selvage edge on their piece of muslin will hold it up so that the line (drawn by the teacher) runs vertically.

2. Make the first turn of the hem one-fourth of an inch, creasing it from right to left. (Special care should be given



ILL. 9.—The Needle in Position for Beginning the Hem.

to this turn, as the evenness of the hem greatly depends on it.)

3. Make the second turn of the hem one inch; begin to turn it at the right-hand side and crease it by laying it in plaits between the thumb and first finger of the right hand. (Never crease it by stretching across from side to side.)

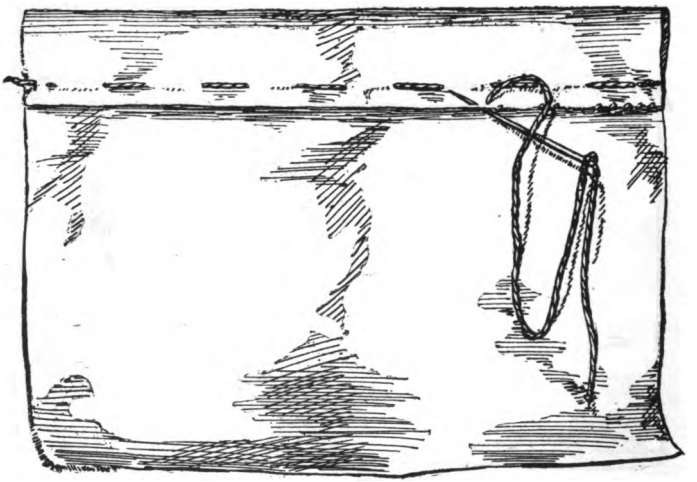
4. Test the results with an inch measure.

5. Baste close to the edge with even basting, as in the picture. See Illustration No. 9.

6. Avoid using knots.

7. Hold the hem straight around the first finger of the left hand.

8. Pointing the needle towards the *right,* put it through the fold of the hem only. See Illustration No. 9.



ILL. 10.—The Hem Partly Done.

9. Draw the needle through, leaving about one-half an inch of thread.

10. Tuck the end of the thread under the fold of the hem.

11. Make two stitches through the fold of the hem, and turn the needle towards the thumb nail of the left hand. These stitches take the place of a knot.

12. Take up a few threads of the muslin and the fold of the hem at each stitch (that is, through three thicknesses of the material).

13. Draw the needle out and continue to make the stitches close and slanting. See Illustration No. 10.

14. Train the eye to know when the stitch is uniform in slant, size, and space.

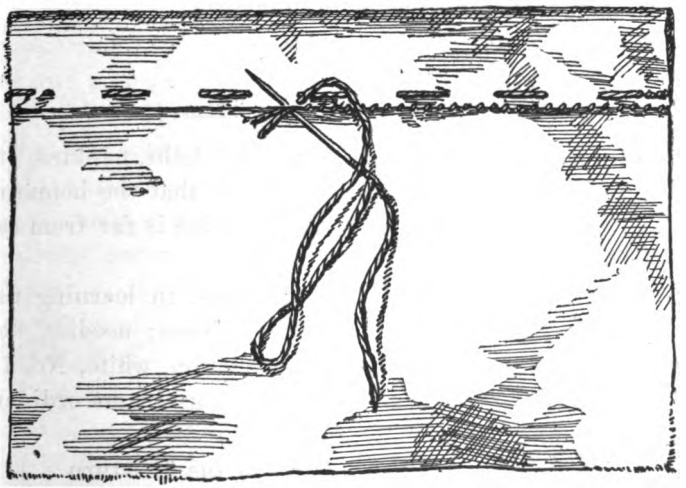
15. Finish the hem by taking two or three stitches on top of each other, and then slip the needle under the hem as far back as three stitches before cutting the thread.

To MEND THE THREAD, if there is no end left, rip out a few stitches and tuck the end of the thread under the fold. Start the new thread as in commencing; tuck the end of the new thread under the fold of the hem and secure both ends with the next stitches. See Illustration No. 11.

Measure or Gauge for a Wide Hem.

1. Measure the desired length at the edge of a card, and make a straight cut into the card.

2. Below this, cut at an angle so as to take out a three-cornered piece.



ILL. 11.—Joining the Thread in Hemming.

To Turn a Wide Hem.

1. Make the first turn as in the narrow hem.

2. Crease the second turn of the hem by placing the straight cut of the gauge to the edge of the fold of the hem and turn it the width of the gauge.

3. Turn about a half yard in this manner, and then go back to the beginning and test it as you baste it.

Mistakes Likely to be Made in Hemming.

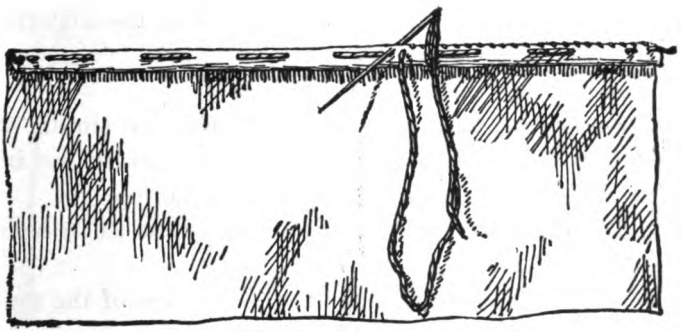
1. Upright stitches caused by not holding the work in the right position and not giving the needle sufficient slant.
2. Stitches not uniform in size.
3. Stitches irregular in space.
4. Incorrect mending of the thread.
5. Hem not turned accurately.

Napery or French Hem.

This hem is used for hemming tablecloths, napkins, etc. Housekeepers are beginning to realize that the hemming of fine table linen with a sewing machine is far from satisfactory.

Materials.—The materials required in learning this lesson are: A napkin or a piece of linen; needles, "betweens" or "ground downs" No. 9; cotton, white, No. 70.

1. Make the first and second turn as in an ordinary narrow hem.
2. Then fold it back at the line of the first turn.
3. Hold the hem towards you.



ILL. 12.—Napery or French Hem.

4. Sew it like an overseam. See Illustration No. 12.
5. Open it out and rub it flat.

Rolled Hem.*

A rolled hem is frequently used on the edges of ruffles, handkerchiefs, etc., particularly where the material is very fine and a lace edge is to be sewed on, and in sewing lace and needlework insertions together. The stitch used in this case is often referred to as whipping.

MATERIALS.—The materials required are: Some sheer fine material, either linen or cotton; cotton No. 80 or 100; needles, "ground downs" or "betweens" No. 9 or 10; scissors.

1. Trim off all frayed edges.
2. Hold the wrong side of the material towards you.
3. Begin at the right-hand side and rub an inch of the material upwards and downwards between the thumb and first finger until you feel a small roll.

*Advanced work.

4. Do this with the left hand, pressing the material firmly while making the roll.

5. Roll about two inches at a time.

6. Sew with a long, slanting stitch somewhat similar to hemming; the needle being held at the same angle, but inserted under the roll and brought out at the top.

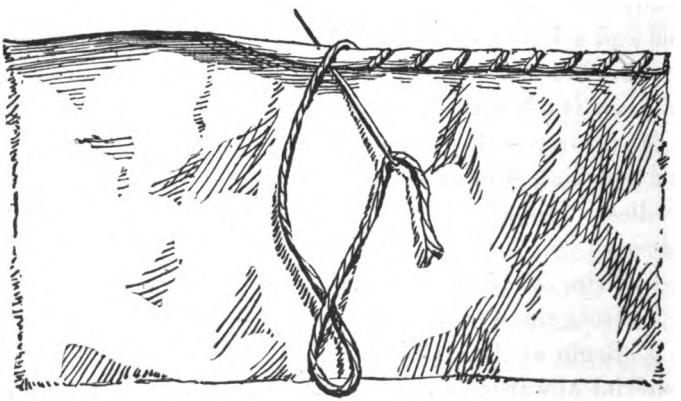
7. Do not make the stitches quite as close as in hemming. See Illustration No. 13.

8. Keep rolling the hem a little in advance of the sewing.

9. If lace is to be sewed on, sew both lace and hem at one time.

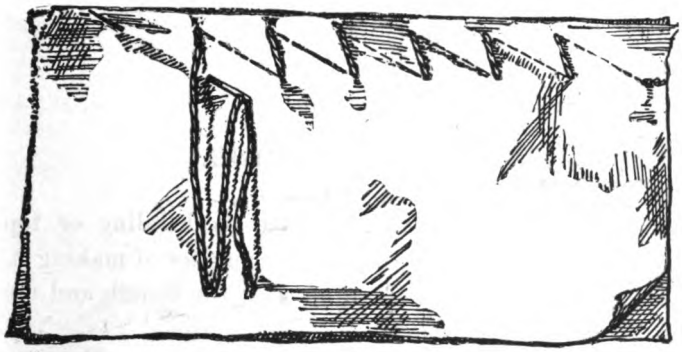
Back Hemming.*

This hemming stitch, on account of its strength, is particularly adapted to sewing braids and facings on skirts.



ILL. 13.—Rolling and Whipping the Hem.

*Advanced work.



ILL. 14.—Back Hemming—A Stitch Used in Sewing on Braids.

MATERIALS.—These materials will be required: A hem basted; heavy silk or cotton; needles No. 8.

1. Begin with a small knot, tuck it under the hem or facing, and instead of taking the needle forward each time, take it a short distance back of where the thread came through last. See Illustration No. 14.

2. The stitch may be a good-sized one, but it must not show through on the right side.

IV. OVERSEAMING.

Overseaming is sometimes called overhanding or top sewing, and it gets its name from the manner of making it.

In sewing, hold the muslin between the thumb and the first finger of the left hand.

Never sew this seam with the material *over* the first finger, as it causes the side towards you to pucker.

In making the stitch, take up as little of the muslin as possible; depend on the closeness rather than on the depth of the stitch for strength.

MATERIALS.—The materials required are: A practice piece of muslin; "ground downs" or "between" needles; scissors; cotton (red); a ruler or tape measure.

1. Measure one and a half inches from the last seam and cut the muslin. (All seams to be made one and a half inches apart.)

2. Make a turn one-fourth of an inch on the *wrong* side of each piece.

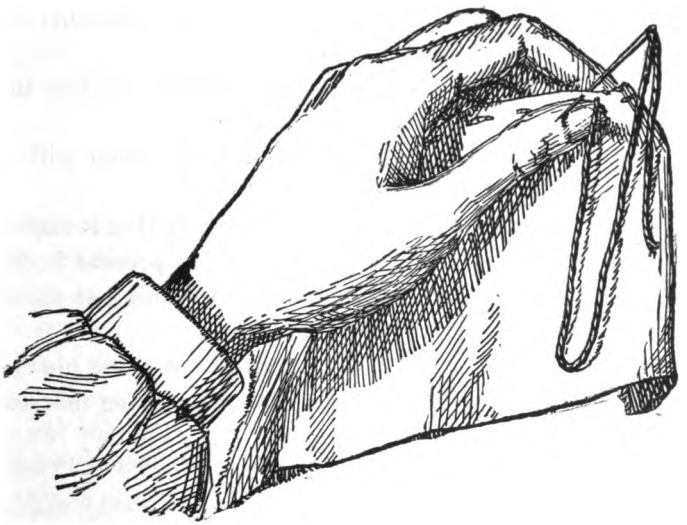
3. Place the material together with the *right* side of each piece out so that the edges and ends are exactly even.

4. Baste close to the edge with even basting.

5. Do not use a knot.

6. Sew from right to left.

7. In beginning the seam, point the needle towards you, taking it through the edge of the muslin nearest you; leave



ILL. 15.—Proper Position of the Work in Overseaming.

an end of the thread, and leave this end on the top of the seam.

8. Sew over it (through both edges) for about a half inch; trim off the end of the thread and continue sewing the seam. See Illustration No. 15.

9. In joining or mending the thread, leave half an inch of the old thread.

10. If the thread breaks short, open a few stitches.

11. With the point of the needle draw the thread out of the edge nearest you.

12. Put the newly threaded needle through the hole where the old thread came out.

13. Leave a half inch of the new thread (no knot) to be sewed down with the old one.

14. Finish the seam by sewing back on the last three stitches.

15. Take out the bastings and rub the seam with the thumb nail until it is perfectly flat.

16. If the seam is a long one, especially if it is made on selvage edges, great care is necessary to prevent it from puckering. This may be avoided by beginning at the centre and sewing towards each end.

PRACTICAL WORK.—Iron holders, pillow cases, pin cushions, bibs, and oversleeves may be made by using this seam.

MISTAKES LIKELY TO BE MADE IN OVERSEAMING.

1. Edges turned unevenly.
2. Seam puckered.
3. Beginning and ending insecure.
4. Stitches too deep or too far apart.
5. Seam not flattened out.

V. RUNNING SEAM.

A running seam is made by taking the needle in and out of the muslin, keeping the stitches and spaces the same length. It probably is so called because it is a rapidly made seam. It resembles even basting on a small scale.

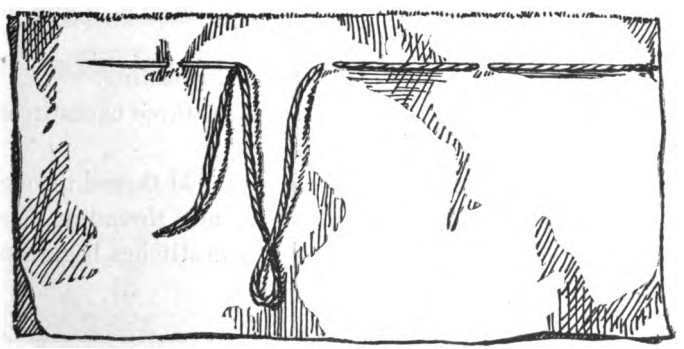
Always sew below the basting.

MATERIALS.—The materials required are: A practice piece cut one and a half inches from the last seam; sharp needles; red cotton; scissors; ruler or tape measure.

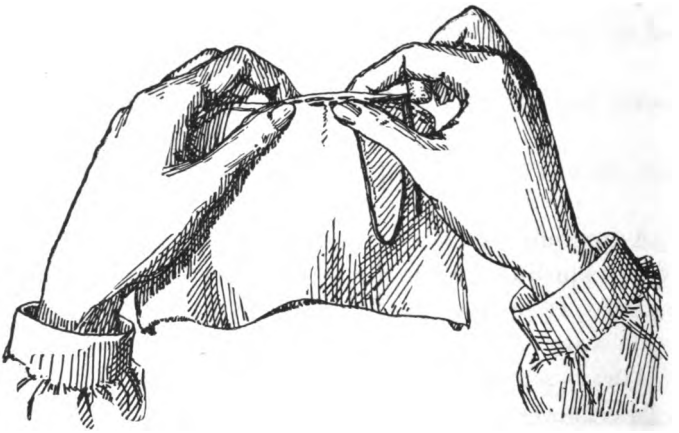
1. Place the muslin together with the *wrong* side of each piece out.

2. Keep edges and ends exactly even.

3. Baste one-fourth of an inch from the edge with uneven basting. See Illustration No. 16.



ILL. 16.—Uneven Basting for a Running Seam.



ILL. 17.—Proper Position of the Work in Making a Running Seam.

4. In sewing, hold the material between the thumb and the first finger of each hand. See Illustration No. 17.

5. Do not use a knot.

6. Leave a half inch of thread and begin the seam with two backstitches.

7. Sew from right to left, taking the needle in and out at regular intervals.

8. Sew directly under and close to the basting.

9. Fasten the thread by taking two or three backstitches at the end.

10. Mend the thread by drawing the old thread through to the wrong side, and by bringing the new thread up from the wrong side; go back over the last two stitches, beginning with a backstitch.

VI. BACKSTITCHING.

The Backstitched Seam.

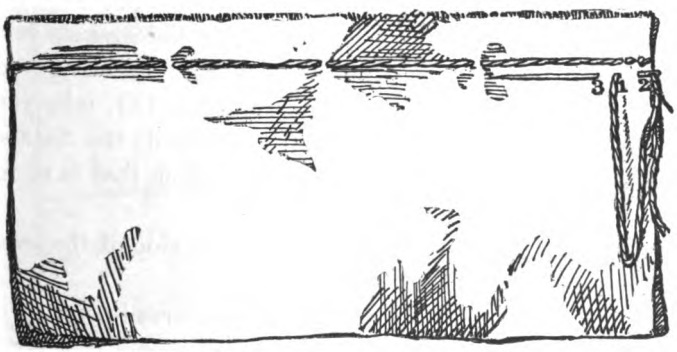
This stitch probably derives its name from the fact that the needle is taken backward in making each stitch. It is frequently called "a whole-back-stitched seam." "Back" tells us the kind of a stitch and "whole" or all the way, the distance back.

The stitch resembles a machine stitch on the right side.

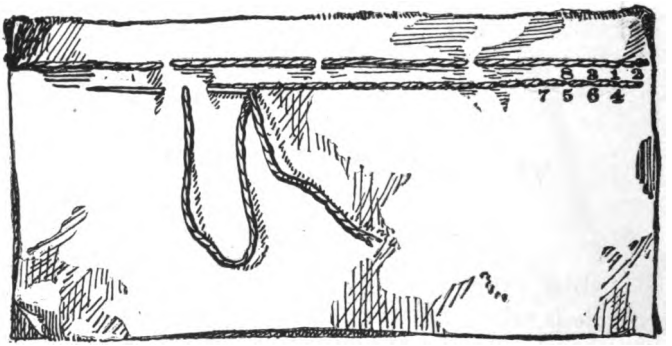
There is no space between the stitches.

This seam is used for joining seams, for strengthening and ornamenting the various parts of a garment, and for sewing on tapes.

MATERIALS.—These materials will be required: A practice piece cut one and a half inches from the last seam;



ILL. 18.—Beginning to Backstitch.



ILL. 19.—Backstitching Partly Done.

"ground downs" or "between" needles; red cotton; scissors; ruler or tape measure.

1. Prepare and baste as for running seam.
2. Do not use a knot.
3. Hold the work around the first finger of the left hand.
4. Sew from right to left.
5. Leave a half inch of thread and begin with two backstitches.
6. Sew by taking a short stitch to the right, and then taking a stitch twice as long to the left on the wrong side of the seam. Make one stitch at a time. Or, bring your thread through at 1 (see Illustration No. 18), take your needle back to 2 and bring it out again at 3; the distance between 1 and 3 being the size of the stitch that is to follow.
7. All stitches must meet on the right side of the seam. See Illustration No. 19.
8. Be careful to keep the stitches uniform in size.
9. In fastening the thread take the needle through to

the wrong side and make two stitches through the last ones made.

10. Mend or join the thread the same as in running stitches.

MISTAKES LIKELY TO OCCUR IN A BACKSTITCH SEAM.

1. Spaces left between stitches.

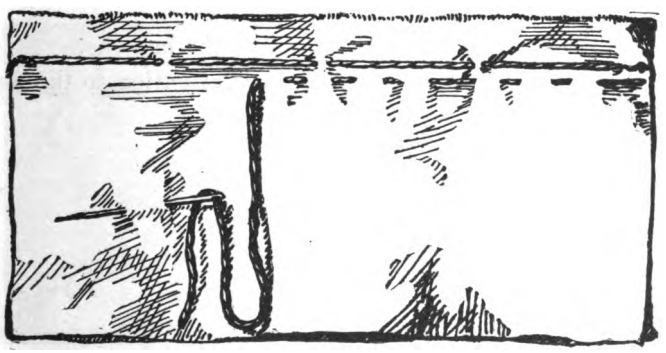
2. Stitches crooked; a number of stitches made on the top of each other instead of always bringing the needle out beyond the thread.

3. Want of uniformity in the size of the stitch.

Backstitch and Three Running Stitches.

This seam may be varied by increasing or decreasing the number of running stitches. It is used when a seam somewhat stronger than a running seam is required.

MATERIALS.—The materials required are: A practice piece cut one and a half inches from the last seam; sharp needles; cotton; scissors; ruler or tape measure.



ILL. 20.—A Seam Made with a Backstitch and Three Running Stitches.

1. Arrange material and baste as for running seam.
2. Begin as for the running stitch with two backstitches.
3. Make three running stitches.
4. Make one backstitch.
5. The last stitch will naturally cover the space to the right of it. See Illustration No. 20.

Half Backstitching.

Half backstitching is made in the same manner as backstitching, except that the needle is taken halfway back instead of all the way back to the last stitch.

It is more rapidly done than the backstitch.

MATERIALS.—The materials required are: A practice piece cut one and a half inches from the last seam; "ground downs" or "between" needles; cotton; scissors; ruler or tape measure.

1. Prepare material and baste as for running seam.
2. Begin by leaving a half inch of thread and making a backstitch.
3. Take one stitch at a time.
4. Make the stitch halfway back to the last one.
5. Continue the seam, giving close attention to the uniformity of the stitch and space.

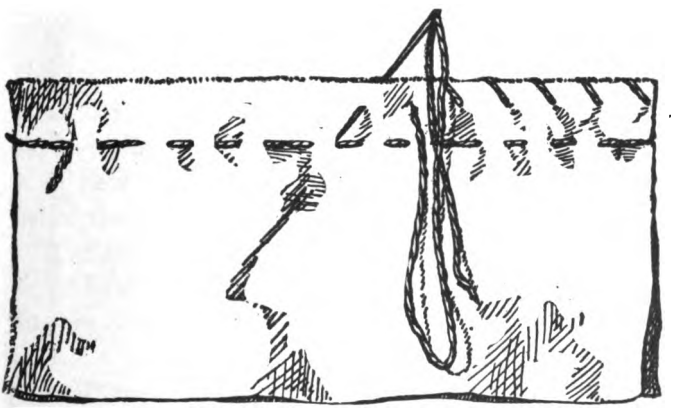
VII. OVERCASTING.

Overcasting is used to finish the raw edges of a seam and to keep it from raveling. In overcasting a lined dress waist, first press open the seams very carefully, then turn in the raw edges of the material and lining to meet each other, and overcast the turned edges with sewing silk; or the edges may be trimmed off and overcast without turning them in.

MATERIALS.—The materials required for this lesson are: A practice piece, using any one of the seams just made; sharp needles; cotton; scissors.

1. Take out all bastings and trim off all frayed edges.

2. Begin at the right-hand side with two small back-stitches.



ILL. 21.—A Seam Finished with Overcasting.

3. Point the needle through the muslin towards the thumb of the left hand, as in overseaming.

4. Make the stitches one-eighth of an inch down and one-fourth of an inch apart.

5. Take the stitch over both edges of the goods.

6. Do not draw the thread tightly. See Illustration No. 21.

7. Overcast with the grain or weave of the material.

8. To join the thread, put the needle between the edges of the seam, take it through the hole made by the last stitch, and make a small backstitch.

Mistakes Likely to Occur in Overcasting.

1. Incorrect slant.
2. Irregular space.
3. Stitch too deep.
4. Cotton drawn too tightly, thus curling the edge and spoiling the appearance of the seam.

VIII. FACINGS.

A facing is a fold placed on the edge of a garment to take the place of a hem.

Facings are frequently cut on the bias. Garments are usually faced on the wrong side.

MATERIALS.—The materials required for learning to make facings are: A dress or petticoat requiring a facing; a facing three or four inches wide and of the desired length; sharp needles; cotton; scissors; ruler or tape measure.

1. Turn the garment right side out.
2. Place the right side of the facing to the right side of the garment (edges exactly even).
3. Hold the facing towards you, being careful not to full it.
4. Baste one-fourth of an inch below the edge with uneven basting.
5. Sew with a backstitch and one running stitch directly below the basting.
6. Take out the basting threads.
7. Fold it over on the wrong side, being careful to keep the seam on the edge, but do not let it show on the right side.
8. Place the skirt flat on the table and baste it through the middle of the facing with uneven basting.

9. Turn down the opposite edge of the facing one-quarter of an inch and baste it close to the edge with even basting.

10. Hem or slip-stitch according to the material.

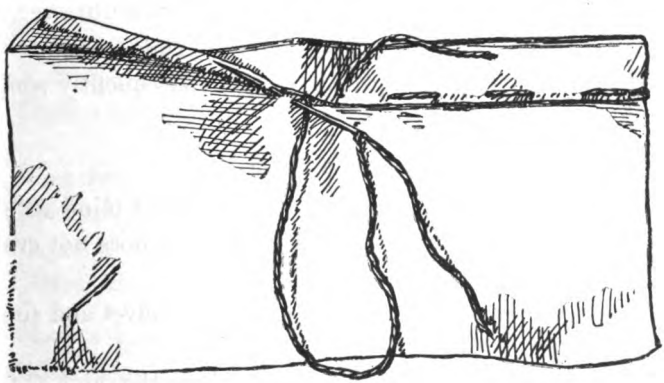
11. Press the edge of the facing with a cool iron. Do not move the iron rapidly, but allow it to rest for a short time on the place to be pressed.

IX. SLIP-STITCHING.*

Slip or blind stitching is a method of sewing a hem or trimming by invisible stitches. It has probably derived its name from the fact that the needle is slipped between two pieces of material and joins them together by a long and a short running stitch, which cannot be seen on either side.

Slip-stitching requires much practice and delicate handling of the material; puckering and insecure stitching being common faults.

Careful pressing of the hem with a cool iron will improve its appearance.



ILL. 22.—Slip or Blind Stitching, with the Needle in Position.

*Advanced work.

MATERIALS.—These materials are required: A piece of flannel or common cloth of sufficient size to illustrate the lesson; fine sewing silk; sharp needles No. 9; tape measure.

1. Fold and crease a hem one inch wide.

2. Baste about one-fourth of an inch from the edge with even basting. (If the material is wiry, it will be necessary to baste each turn separately.)

3. Make a very small knot.

4. Hide the knot by taking the needle through the under part of the fold, close to the end.

5. Take up *two or three threads* of cloth, and before drawing the needle through take one-fourth of an inch of the under edge of the fold. See Illustration No. 22.

6. Bring the needle out at the edge; draw the thread gently.

7. Fasten the end of the thread securely.

MISTAKES LIKELY TO OCCUR IN SLIP-STITCHING.

1. Stitches which show through on the right side.

2. Hem not properly prepared, and consequently somewhat twisted when finished.

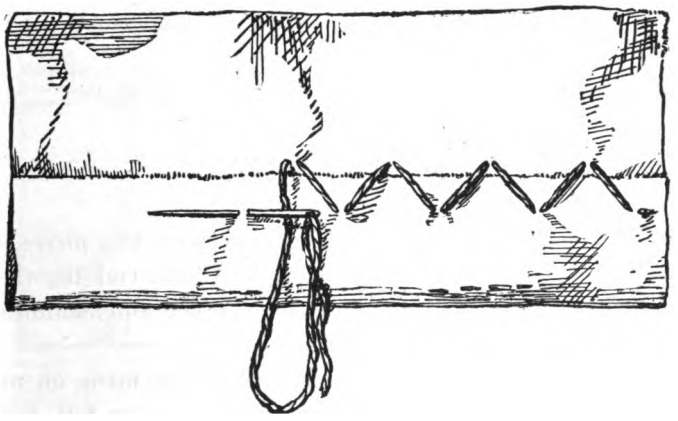
Milliner's Hem.*

A milliner's hem may be considered a sort of blind stitching; it slightly resembles a catch stitch, but does not cross at the angles.

It is much used in securing the edges of velvet and similar fabrics.

MATERIALS.—The materials required are the same as for slip-stitching.

*Advanced work.



ILL. 23.—Milliner's Hem.

1. Turn down the hem one inch. (This hem is only given *one turn.*)

2. Hold the hem upside down.

3. Take a small stitch through the turn of the hem.

4. Take another small stitch, a little forward and through the material, just above the hem.

5. These stitches must not show through on the right side.

6. Work from right to left.

7. Continue in this manner, being careful to draw the thread lightly. See Illustration No. 23.

8. Fasten with a backstitch.

MISTAKES LIKELY TO OCCUR IN MILLINER'S HEM.

1. The stitches showing on right side of garment.

2. Stitches made too close together.

3. Hem twisted, especially if made on the bias.

X. THE FELL.

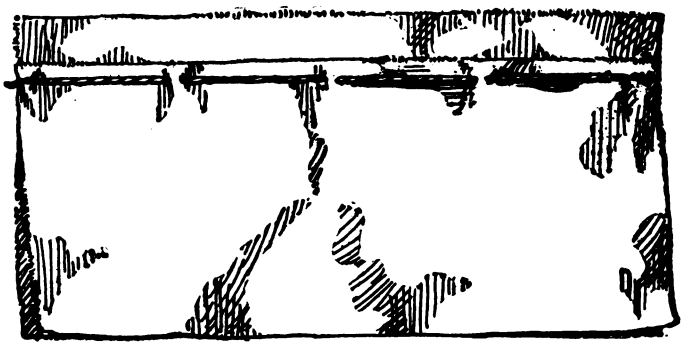
A plain fell is a flat, smooth seam between two pieces of fabric made by putting two pieces of material together with one edge extending beyond the other and hemming the extended edge down.

In lower grades, the plain fell should be made on unbleached muslin; in higher grades, a narrower fell, both bias and straight, should be made and bleached muslin used.

Hem a fell cut on the bias by beginning at the wide part of the garment and sewing towards the narrow part.

A fell may be made by sewing it with the edges even, and then trimming off the lower edge.

MATERIALS.—The materials required are: A practice



ILL. 24.—The Plain Fell Basted.

ILL. 25.—Sewing the First Part of Plain Fell.

piece cut one and a half inches from the last seam; "sharp" needles for the first part and "ground downs" for the second part of the seam; cotton; scissors; ruler or tape measure.

1. Place the muslin together with the upper edge extending one-fourth of an inch above the lower edge. See that the edges are kept parallel.

2. Place the wrong side of each piece out.

3. Baste with uneven basting one-eighth of an inch below the lower edge. See Illustration No. 24.

4. Sew with a backstitch and three running stitches close to and under the basting. See Illustration No. 25.

5. Take out the basting.

6. Open the work out flat and rub it the entire length of the seam to prevent it from forming a fold on the right side.

7. Turn down the edge that extends one-eighth of an inch on the wrong side.

8. Press the turn down flat and baste it with even basting.

9. Finish with hemming. See Illustration No. 26.

NOTE.—The second basting is sometimes omitted, and the edge is turned under with the point of the needle as it is hemmed.

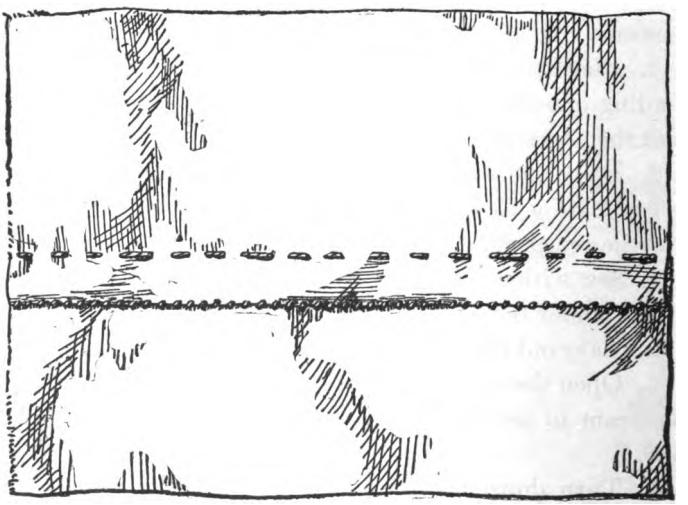
MISTAKES LIKELY TO OCCUR.

1. Badly prepared fell, the width being unsuitable to the garment.

2. A puckered and clumsy, instead of a neat and flat, appearance on the right side.

French Fell.

In a French fell the frayed edges are completely hidden, and no stitches show on the right side. When finished, it



ILL. 26.—Plain Fell Completed.

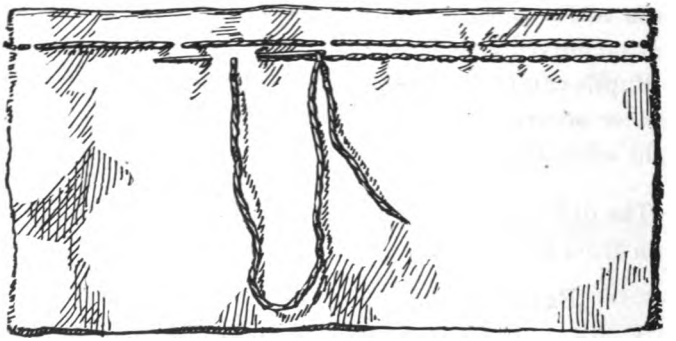
looks like a ridge or a cord, and is particularly satisfactory on curved or bias seams.

Pupils can baste the second part of the French fell with greater accuracy if they hold it up between them and the light while doing it.

The difference between a plain and a French fell will be seen from this table:

Plain Fell.	French Fell.
1. Place the seam together with the *wrong* side of each piece out.	1. Place the seam together with the *right* side of each piece out.
2. Let one edge extend *one-fourth of an inch* beyond the other.	2. Make the edges and ends *exactly even.*
3. Baste with uneven basting one-eighth of an inch below the *lower* edge.	3. Baste with uneven basting one-eighth of an inch below the edge.
4. Sew the first part of the seam with *three* running stitches and a backstitch.	4. Sew the first part of seam with *one* running and one backstitch.
5. Turn down the edge that extends and finish with hemming.	5. Turn the seam on the wrong side and finish with backstitching.

Materials.—The materials required for the French fell are: A practice piece as prepared for other seams; "ground downs" or "between" needles; cotton; scissors; ruler or tape measure.



ILL. 27.—French Fell.

1. Place the material with the *right side* of each piece out and the edges and ends exactly even.

2. Baste with uneven basting one-eighth of an inch from the edge.

3. Sew with a backstitch and one running stitch directly under the basting.

4. Take out basting.

5. Trim off frayed edges.

6. Rub the seam on the wrong side with the nail so that the sewing, when the seam is turned, may be kept at the edge.

7. Turn the material over on the line of sewing so that the seam will be on the wrong side.

8. Baste with uneven basting directly below the turns. Be careful that no frayed edges are seen on the right side.

9. Sew with a backstitch. See Illustration No. 27.

PRACTICAL WORK.—A corset cover will give experience in making the French fell.

MISTAKES LIKELY TO OCCUR IN THE FRENCH FELL.

1. First part of the seam not brought to the top edge when basting for the second seam.

2. Frayed edges of the first seam showing on the right side when finished.

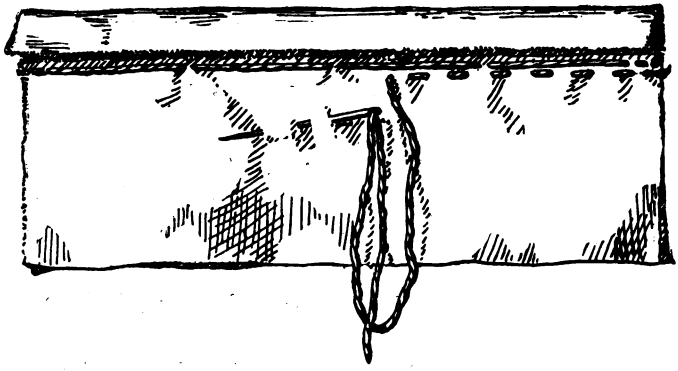
3. Seam too wide.

English Fell.

This is really a plain fell, differing principally in the method of turning and sewing the first part. It is useful in making up sheer muslins, lawns, and similar materials where quickness of sewing rather than strength of seam is desired.

This seam does not require the second part to be basted.

MATERIALS.—The materials required are: A practice piece cut one and a half inches from the last seam; "sharps" for the first part and "ground downs" or "be-



ILL. 28.—English Fell, Showing the Turning of the Edge and Sewing of the First Part.

tween" needles for the second part of the seam; cotton; scissors; ruler or tape measure.

1. Turn down the edge of one piece one-eighth of an inch on the *right* side.

2. Place the raw edge of the other piece to this fold with the wrong side of each piece out.

3. Baste one-eighth of an inch below the lower edge with uneven basting.

4. Sew with running stitches one-eighth of an inch below the lower edge. See Illustration No. 28.

5. Press the turned edge down flat.

6. Finish with hemming.

Overseam and Fell.

This is a particularly strong seam, and is often used for joining bias materials together.

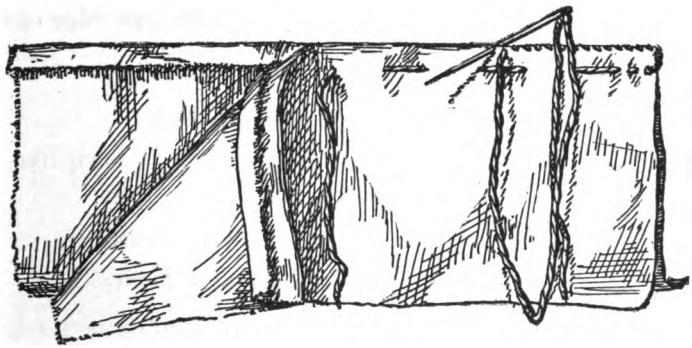
MATERIALS.—The materials required are: A practice piece cut one and a half inches from the last seam; needles, "ground downs" or "betweens"; cotton; scissors; ruler or tape measure.

Paper may be used in practicing the folds necessary to make this seam.

1. Put a double fold or turn on one side of the material, making the first turn one-eighth of an inch on the *right* side, and the second turn one-fourth of an inch back on to the *wrong* side.

2. Turn the other piece one-fourth of an inch on the *wrong* side.

3. Place the material together with the *right* side of each piece out,



ILL. 29.—Overseam and Fell, Showing how the Edges are Turned.

4. Baste with even basting.
5. Overseam the two edges together.
6. Flatten the seam out well.
7. Turn the double fold over, and finish with a hem on the wrong side. See Illustration No. 29.

German Hemming or German Fell.

The German fell, like the plain fell, is made with two seams and does not show any frayed edges.

MATERIALS.—These materials will be required: A practice piece cut one and a half inches from the last seam; "ground downs" or "between" needles; cotton; scissors; ruler or tape measure.

1. Turn down one piece one-eighth of an inch on the *right* side. (This represents the upper half of the seam.)
2. Turn down the other piece one-eighth of an inch on the wrong side. (This represents the lower half of the seam.)

3. Then place the lower fold just to the raw edge of the upper fold.

4. Baste with even basting.

5. Hem along the edge of the lower fold.

6. Turn the upper fold over, and hem it down like an ordinary fell.

Reversible Seam or Counter Hem.

A reversible seam is a flat seam hemmed on both edges. It probably derives its name from the manner of turning it, or from the fact that a garment made with this seam may be worn either side out.

Time may be saved by practicing the turning and placing of the seam on paper before attempting it on muslin.

This seam is sometimes stitched instead of hemmed.

MATERIALS.—The materials required are: A practice piece cut one and a half inches from the last seam; "ground downs" or "between" needles; cotton; scissors; ruler or tape measure.

1. Turn down the edge of one piece one-eighth of an inch on the *wrong* side.

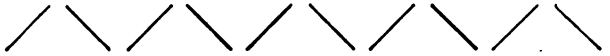
2. Turn down the edge of the second piece one-eighth of an inch on the *right* side.

3. Place the two folds one on top of the other, so that the frayed edges will not show on either side.

4. Place one inch together at a time; hold it up to the light in order to detect any crookedness.

5. Baste through the centre of the seam. Take an occasional backstitch to prevent the cloth from slipping

while being sewed. On woolen goods baste across the seam from edge to edge like this:



6. Hem first on the right and then on the wrong side.

Common Mistakes in the Reversible Seam.

1. Edges turned unevenly.
2. Seam basted so that it will not have straight edges.

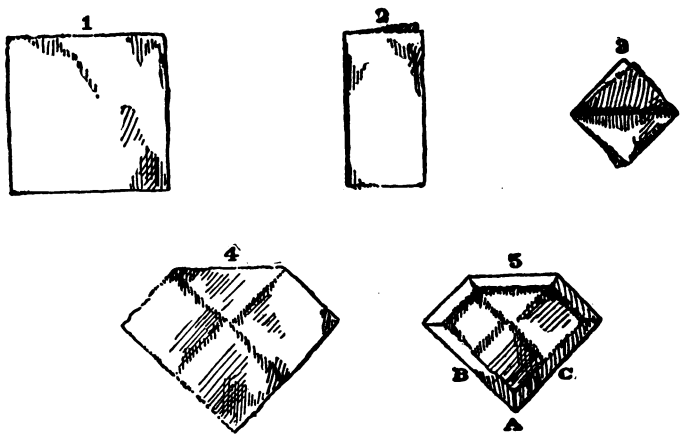
XI. THE GUSSET.

A gusset is a small piece of material inserted in a garment for the purpose of strengthening or enlarging some opening where there is likely to be more or less strain.

On flannel garments where a gusset would be too bulky a strengthening tape is frequently used.

It is next to impossible to tear the bias folded edge of the gusset.

The beauty of the gusset depends on the exactness with which it is put in and the care taken in finishing it.



ILL. 30.—Steps in Preparing the Gusset. 1. Material Out of Which the Gusset is to be Made. 2. Folded Once. 3. Folded Twice to be Cut on Upper Fold. 4. Shape when Opened. 5. Ready to Place in Vent.

MATERIALS.—The materials required for this lesson are: A practice piece in which a vent has been made ready for a gusset; a piece of muslin one and a half inches square, out of which the gusset is to be made; "between" needles; cotton; scissors; tape measure; a piece of paper or cloth ten inches square and having right and wrong sides, so that the process of folding the gusset may be learned easily.

1. Fold the square of paper on its diameter. Describe and draw the shape (an oblong or rectangle).

2. Fold it again; it will now form a square one-fourth the original size.

3. Fold *one* of these squares on its diagonal.

4. Open out and cut across this diagonal. Make a drawing of it as it now appears (a pentagon).

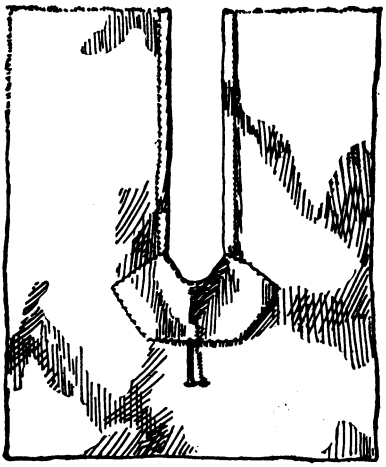
5. Take the piece of muslin intended for the gusset, which should be one and a half inches square, and repeat the steps taken on the paper. See Illustration No. 30.

6. Turn down the corner of the gusset as in the patch. See page 108.

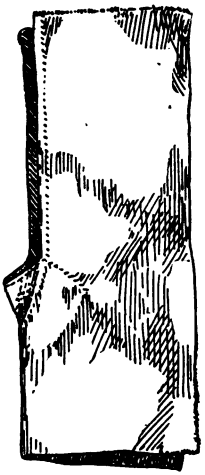
7. Turn down the sides of the gusset one-eighth of an inch and baste this turn with even basting.

8. Place the apex of the gusset (A) in the angle formed by the vent or seam (wrong side of the gusset to the wrong side of the seam).

9. Begin at (A) by inserting the needle through both the gusset and the angle of the vent; leave a long end of thread; overseam very neatly as far as (B). Fasten se-



ILL. 31.—Wrong Side of Gusset when Completed.



ILL. 32.—Right Side of Gusset when Completed.

curely and run the needle in and out of the muslin to keep it temporarily secure.

10. Thread a new needle with the long thread left at (A) and overseam to (C). Flatten out the overseaming stitches and fasten the needle as before.

11. Turn the gusset down on the wrong side of the garment and baste it around with the thread left at (B).

12. Then hem it with the thread left at (C); in this way avoiding the starting of a new thread during the process. See Illustration No. 31.

13. The bias fold of the gusset may be stitched close to the edge to strengthen it and give it a finish. See Illustration No. 32.

MISTAKES LIKELY TO OCCUR IN MAKING THE GUSSET.

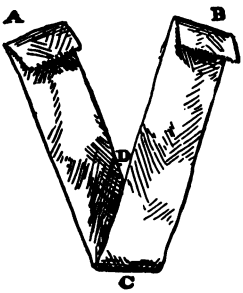
1. Badly prepared vent into which the gusset is to be inserted.
2. Gusset carelessly inserted on the right side.
3. Sides sewed unequally as regards length.
4. General appearance not flat when finished.

NOTE.—In preparing the vent for the gusset, be extremely careful to roll the hem towards the V part of the vent.

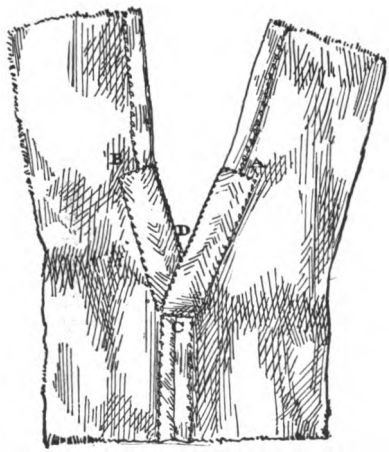
Strengthening Tapes.

A strengthening tape is used as a substitute for a gusset, at the end of seams and vents especially in flannel garments.

MATERIALS.—The materials required are: A practice piece with a vent or seam same as for a gusset; a piece of



ILL. 33.—Strengthening Tape Ready to Sew on a Garment.



ILL. 34.—Strengthening Tape Sewed to a Garment.

tape half an inch wide and two and a half inches long; tape measure.

1. Turn down a narrow fold on each end of the tape.

2. Make one turn on the right and one on the wrong side of the tape. See (A) and (B) on Illustration No. 33.

3. Fold the tape in the middle like (C) on Illustration No. 34.

4. Hold the wrong side of the garment towards you.

5. Place the wrong side of the tape at (D) to the vent or seam.

6. Pin the tape in position.

7. Hem from (A) to (C) to (B) down on the garment.

8. Then hem from (B) to (D) back to (A) without breaking the thread. Buttonhole stitches are sometimes used instead of hemming around the V part of the vent.

XII. THE PLACKET.

A placket is an opening or slit made in the upper part of a petticoat or skirt for convenience in putting it on.

A placket on a dress is frequently faced on the right-hand side with an extension hem attached to the left-hand side; the right-hand side should be lapped over at the bottom of the vent and stitched.

The vent in a lady's skirt should be ten inches long, but in a petticoat the length of the vent will depend upon the depth of the yoke or band.

MATERIALS.—Materials required: The best material for this lesson is a skirt on which the placket is to be made; needles; cotton; scissors; tape measure.

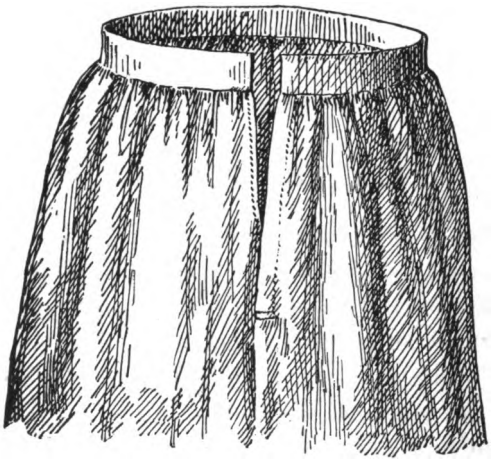
1. Leave one of the seams of the skirt open the desired length, or

2. If the seam is not in proper place for the placket, cut a vent the proper length; cutting the vent with a thread of the muslin.

3. Turn the skirt wrong side out.

4. On the right-hand side of the vent, make a hem one-fourth of an inch wide, narrowing it to a point and rolling it at the bottom.

5. On the left-hand side, make a hem three-fourths of an inch wide, keeping it the same width all the way down.



ILL. 35.—The Placket.

6. Turn the skirt right side out; the wide hem is now on the right-hand side and the narrow one on the left.

7. Lap the three-fourths-of-an-inch hem over the narrow one on the left-hand side at the bottom of the vent, and secure it by two horizontal rows of stitching, about one-fourth of an inch apart. See Illustration No. 35.

XIII. CORDING AND PIPING.*

Cording is used to strengthen and finish various parts of a garment, and is made by covering dress cord with a bias piece of material. The width of the bias strips depends on the thickness of the cord. Additional material must be allowed if the covering is intended to face the garment as well.

MATERIALS.—The materials required are: Cloth cut on a true bias; needles, "sharps"; cotton; scissors; a piece of fine dress cord; tape measure.

1. Place the cord on the wrong side of the bias strip.
2. Let the end of the strip extend one-fourth of an inch.
3. Fold the end of the bias strip, and then fold one edge over so that it meets the other.
4. Baste with even basting close to the cord.
5. If it is intended to use the cording as a facing, consider this fact in preparing the material to cover it. Place the cord as above and turn the edge over so that one edge of the bias strip just covers the cord, the other edge extending beyond it. See Illustration No. 36.
6. Baste close to the cord.
7. Holding the cord downwards, place the wrong side of

*Advanced work.

the strip to the right side of what represents the garment, keeping the raw edge of the fold even with raw edges of the garment.

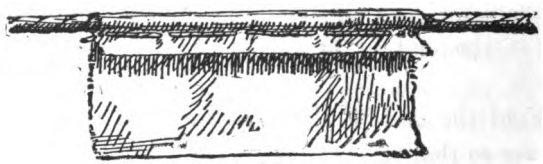
8. Sew close to the cord with a backstitch.

9. Fold the cording back to the wrong side, and press the garment evenly against it at the top, to make the cord set well at the edge.

10. Hem the extended edge down on the wrong side for a facing.

11. Do not allow the hemming stitches to show through on the right side.

What is known as piping is merely an edge applied as a finish to bias folds, scanty ruffles, etc., and consists of a bias strip of contrasting or similar goods doubled, with the folded edge allowed to show.



ILL. 36.—Cording, with Material Extending to be Used as a Facing.

XIV. BINDINGS.*

A binding is used to strengthen and protect the raw edges of a garment by covering them with a folded tape, ribbon, braid, etc.

Flannel binding is a thin kind of tape with a silky finish.

Galloon or Persian binding has a silky finish, with a sort of a herringbone weave on the surface.

These bindings come in various widths, half-inch being the most common.

MATERIALS.—The materials required for this lesson are: A piece of flannel one-half yard long; a piece of skirt braid, ribbon, or Persian binding one-half inch wide; needles, "sharps"; sewing silk or cotton, according to materials; scissors; tape measure.

1. Begin at the right-hand side.

2. Place the binding on the edge of the flannel so that, when finished, one-third of the width of the binding will be on the right side and two-thirds on the wrong side of the garment; or it may be made alike on both sides.

3. Hold the binding firmly and ease the flannel in slightly, so as to keep the edges from puckering.

4. Take a few running stitches across the end of the braid to prevent it from spreading.

*Advanced work.

5. Either hem or stitch it on the right side; afterwards hemming it down on the wrong side. Or it may be stitched, or sewed with a running stitch, directly through both edges. The latter method is used in binding the seams of dresses; in this case the binding must be placed evenly on both sides.

6. Another way is to lay the binding flat on the right side of the goods about one-sixteenth of an inch from the edge.

7. Sew with a running and an occasional backstitch.

8. Turn the braid over, press it down as flat as possible, and hem it to the wrong side of the material.

9. Be careful that the stitches do not go through to the right side.

10. In turning the braid over, it may be allowed to form a slight cord on the right side if desired.

11. Before joining, take a few stitches across each end of the braid to prevent it from spreading.

12. Then overseam the edges together.

Note.—In binding flannel, the binding is sometimes basted on both sides and secured by feather stitching on the right side.

Mistakes Likely to Occur.

1. The binding may be put on too loose, thus giving it a wrinkled appearance.

2. The corners may be drawn or not tacked securely.

3. The binding may not be placed far enough away from the raw edges of the material, thus causing it to break away when the flannel is washed.

XV. MITRED CORNERS.

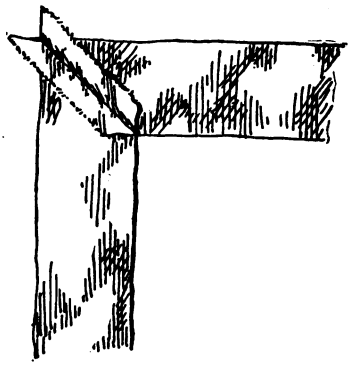
The seam used in mitring corners is formed by joining two pieces of materials together, each cut at an angle of 45 degrees, and sewing them so as to form a right angle.

MATERIALS.—These materials are required for this lesson: Two strips of material four inches wide; needles, "betweens" or "ground downs"; cotton; scissors; tape measures.

1. Fold the corners of the strips to be mitred on a true bias, and crease.

2. Cut with the inside of the crease up.

ILL. 37.—Material Cut and Sewed.



ILL. 38.—A Mitred Corner.

3. Place the bias ends together with the wrong side of each piece out. See Illustration No. 37.

4. Baste together with even basting one-fourth of an inch from the edge.

5. Open the seam and see if it has been correctly placed.

6. Sew with a backstitch directly below the basting.

7. Press the seam open and trim the corners neatly. See Illustration No. 38.

To Mitre the Corners of a Hem.*

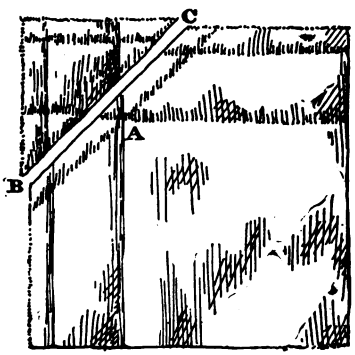
MATERIALS.—These materials are required: A handkerchief or some similar article requiring a mitred corner; needles; cotton; scissors; tape measure.

1. Cut off the corner one-fourth of an inch deep.

2. Fold the two sides down one-fourth of an inch and crease carefully.

3. Crease each side down one inch from the edge of the first turn.

4. Mark where the crease meets by a dot or pinhole.



ILL. 39.—Mitred Corner Cut and Ready for First turn of Hem.

ILL. 40.—Mitred Hem Basted.

*Advanced work.

See Illustration No. 39, letter A representing dot or pin-hole.

5. Open all the folds and make a diagonal crease across the corner one-fourth of an inch outside the spot marked by the dot A.

6. Cut on the crease just made. See (B and C) on Illustration No. 39

7. Turn down the bias edge one-fourth of an inch. (Be careful not to stretch it.)

8. Fold and baste the sides of the hem, making the two edges meet at a right angle. See Illustration No. 40.

9. Hem carefully, taking the stitches at the mitred corner so that they will not show through on the right side.

10. Test your skill in this lesson by repeating the lesson on similar corners.

XVI. CUTTING AND PIECING ON THE BIAS.*

Materials used as facings or bindings on curved edges are frequently cut on the bias, because when cut in this way they may be stretched to fit the curve.

Bias material is often preferred in facing a straight edge because it makes a smoother lining than a straight strip of cloth. Ruffles are frequently cut on the bias.

When several bias strips are required, they can be easily and accurately cut by first folding and cutting the material once on a true bias (that is, on a true diagonal line); then by making a paper measurement the width of the strips desired and dotting the material with chalk or pencil as it is measured. Cut by the dots.

A garment cut with bias seams is generally spoken of as being gored. The object in goring any garment is to reduce the weight by taking out all unnecessary material, or to improve the appearance by decreasing the fullness at the hips and waist, and increasing it at the bottom. In many cases it is an economical way of cutting.

MATERIALS.—The materials required in this lesson are: A piece of muslin eighteen inches square; needles; cotton and scissors; tape measure.

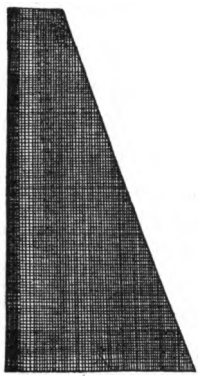
1. Fold the material so that the selvage or warp threads

*Advanced work.

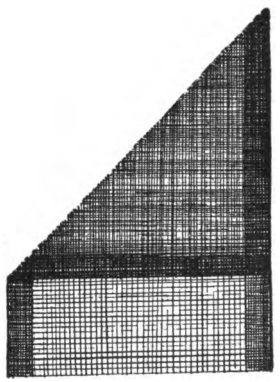
are on a line with one of the woof threads. See Illustration No. 42.

2. Crease the fold. Open it out with the inside of the crease up.

3. Cut on the crease.



ILL. 41.—Material Cut on a Bias, Such as would be Required in Underclothing.



ILL. 42.—Material Folded for Bias Cutting.

To Cut a Bias Strip.

1. Make a paper measurement the width of the strips wanted.

2. Measure down from the cut edge the distance required for the strip and dot at every four inches.

3. Continue measuring and dotting row after row until a sufficient number of strips have been measured off.

4. Cut on the line of dots. Or you may measure each end and mark it by drawing a chalked line across.

ILL. 43.—Bias Strips in Position before Joining.

Bias Piecing.

1. With the wrong side up, place the strips on the desk in the proper position for sewing. See Illustration No 43.

2. Place the pieces marked A and B with the wrong side of each piece out, the edges and ends that are to meet, even.

ILL. 44.—Bias Pieces Sewed Together.

3. Move the edge of the upper piece until it corresponds in position with Illustration No. 44.

4. Hold the edges firmly; baste across from A to B with even basting.

5. Open out the work on the desk and see if it is properly placed together.

6. Sew with a backstitch.

7. Press open the seam and cut off the corners that extend.

8. Join the next piece in a similar manner.

XVII. GATHERING.

Gathering is a stitch used to compress by the use of plaits or even wrinkles a portion of the material which requires to be drawn into a smaller space; this is necessary to give ease and looseness to certain parts of garments.

Double thread is used in gathering, in case one thread should break while the gathers are being placed. A double thread also helps to keep the gathers in place.

The material to be gathered should be divided into halves, quarters, or eighths, according to its width.

MATERIALS.—The materials required in learning to gather are: Sharp needles; cotton; scissors; pins; a practice piece twelve inches *across* the material; tape measure.

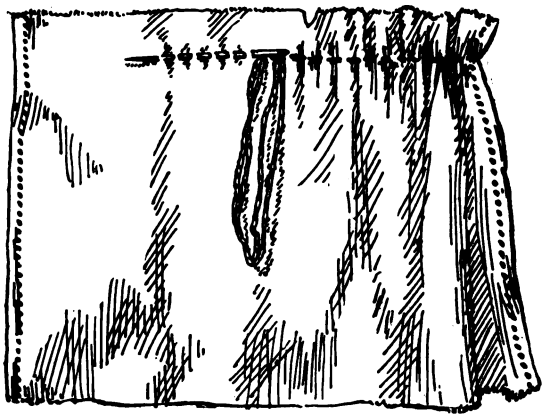
1. Find the middle of the edge to be gathered and mark the place by cutting a small notch.

2. Use double thread (the length of the thread to be regulated by the material to be gathered).

3. Begin the gathering with a knot and several backstitches.

4. Hold the wrong side of the material towards you.

5. Take up two threads on the needle and go over four; or, in other words, the material taken up on the needle should be one-half the quantity of that passed over. Threads



ILL. 45.—Gathering Stitches. Centre of Material Marked by Notch.

should not be counted after you become familiar with the length of the stitch.

6. Take up as many stitches on the needle as possible and press them up against the thimble before drawing it through; this helps to place the gathers. See Illustration No. 45.

7. When the gathering is finished remove the needle from the thread and make a knot on the end of the thread.

8. Place a pin vertically close to the last stitch.

9. Draw the gathering thread up and wind it around the pin.

10. Pull the gathers into place by holding the top edge with the left hand, and drawing the material down with the right, making a rotary movement while doing so. This will do away with the bunched appearance of gathers and

will make them look like plaits; it is good preparation for stroking. See Illustration No. 46.

11. In stroking the gathers, use a rather coarse needle.

12. Hold the work between the thumb and forefinger of the left hand, keeping the thumb below the gathering thread.

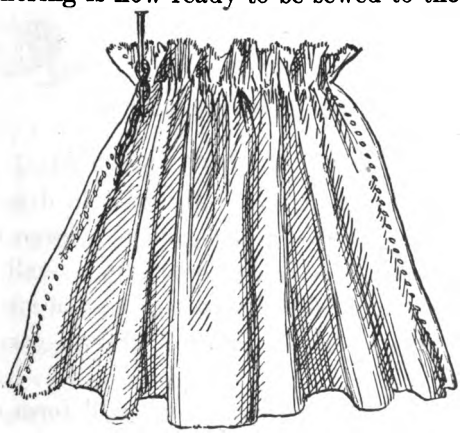
13. Put the point of the needle under each stitch, holding it obliquely. Make a short, quick stroke. See Illustration No. 47.

14. Press the needle towards the thumb, bringing the little plait under the thumb and drawing the needle downwards.

15. Do not allow the needle to make a scratching sound when stroking, as there is danger of tearing the fabric.

16. Stroke the material on the right side, as well as the wrong side, when necessary.

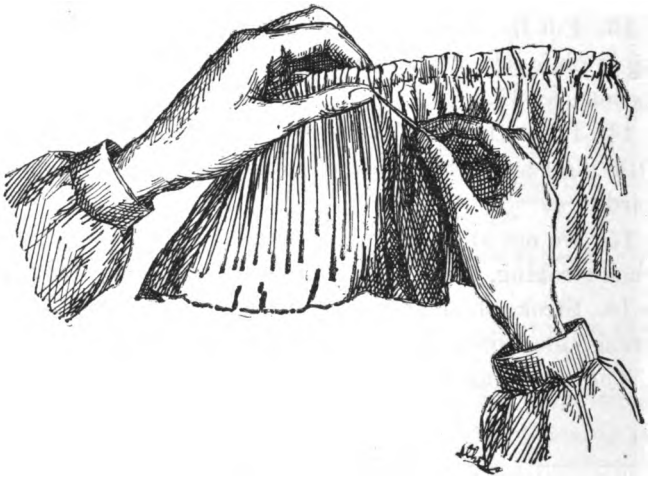
The gathering is now ready to be sewed to the band.



ILL. 46.—Gathering Drawn Up with Pin in Position.

Mistakes Likely to Occur in Gathering.

1. Material for gathering not properly prepared, so that the stitches run with the warp instead of the woof.
2. Gathering stitches irregular.
3. Materials scratched in stroking.



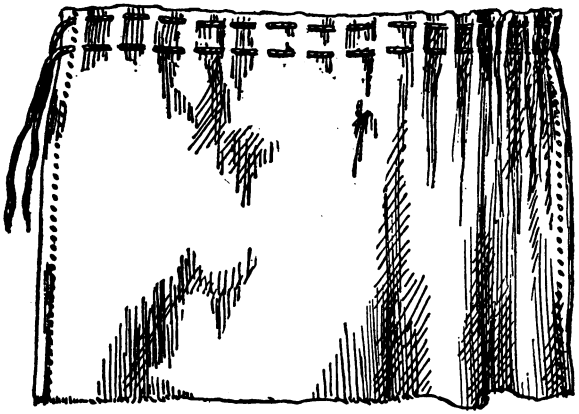
Ill. 47.—Stroking the Gathers.

French or Dress Gathering.

French gathering is generally used in drawing up the fullness at the back of skirts, when a large quantity of heavy material has to be gathered into a small compass.

The stitch and space may be increased according to fullness, but care should be taken to retain correct proportions.

This gathering, when drawn up, will form small plaits and does not require to be stroked.



ILL. 48.—French or Dress Gathers.

MATERIALS.—The materials required are: A practice piece arranged so that there will be fifteen inches across the muslin; needles, "sharps"; cotton; scissors; pins; tape measure.

1. Hem the sides of the material.
2. Fold down the top edge one-half inch on the wrong side.
3. Mark the centre by a cross-stitch.
4. Use double thread a little longer than the material to be gathered.
5. Make a knot on the end of the thread.
6. Hold the right side towards you.
7. Insert the needle through the edge turned down so as to bring the knot in between the fold and hide it.
8. Make two overseaming stitches.
9. Take up on the needle one-sixteenth and go over one-fourth of an inch.

10. Gather as close as possible to the top edge.

11. Remove the needle, but do not draw up the thread.

12. Make the second row of gathering one-fourth of an inch below the first, *taking each stitch directly below the one above it.* See Illustration No. 48.

13. Remove this needle also.

14. Take hold of both threads near the muslin, and gradually draw the gathers up to the required length; they will now form distinct plaits or flutes, and will not require any placing or stroking.

The gathering is now ready to sew to the band.

Gathering for Ruffles, Frills, Flounces, etc.

In making ruffles, care should be taken in sewing the various widths together, as the fullness causes the ruffle to flare and show the seams.

In fine cotton goods, the seams should be made with running stitches. In woolen material or silk, they should be sewed and then pressed open, and where they have cut or torn edges, and are disposed to fray, the edges should be overcast.

The piece to be gathered should be taken from the width of the material, as the fullness is easier to arrange and the stroking has more effect upon the width than the length. Ruffles are frequently cut on the bias.

Once and a half is generally considered a sufficient amount of fullness for a ruffle.

In turning a corner, put more fullness into the ruffle at that point to prevent it hooping at the edge. The rule is to allow twice the width of the ruffle. For instance, if the

ruffle is four inches wide, put eight inches in fullness at the corner.

When putting on a gathered flounce, never guess at the uniformity of the fullness. Measure the work off in sections, pinning the gathered piece at each section. By so doing you will avoid ruffles that are too full in one place and too skimpy in another.

In many laces, such as Valenciennes, Torchon, etc., there will be found a thread close to the top which takes the place of a gathering thread, and by which the fullness can be arranged with great exactness.

As it is important that the pattern in lace should show, it should be borne in mind that it requires very little fullness, except at the corners.

MATERIALS.—The materials required are: A piece of muslin one-half yard long and five inches wide; needles, "sharps"; cotton; scissors; tape measure.

1. Mark with cross-stitches the half and quarter of your material the same as in other gathering.

2. Hold the right or wrong side towards you, according as you will sew the ruffle when finished, to the right or wrong side of your cloth.

3. Gather with ordinary running stitches, taking as many stitches on the needle as possible, and if the material is such as would require placing or stroking, press them up against the thimble before drawing it through.

4. When doing practical work, never gather more than one-fourth of the entire ruffle on one thread.

5. Place the gathers, if necessary, and arrange them to suit the place they are to occupy.

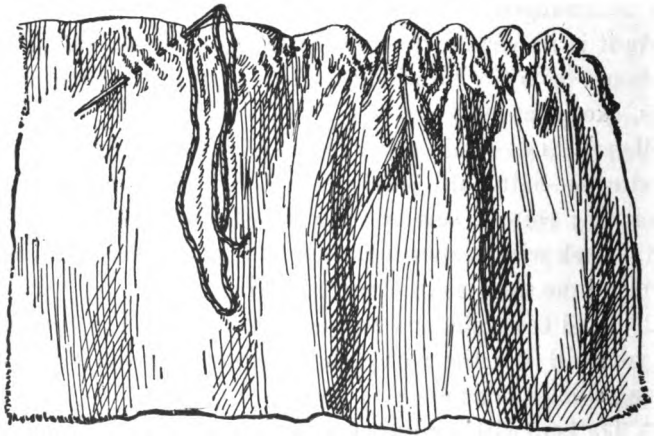
Gathering with a Shell Edge.

This sort of gathering is used generally on light-weight silk or woolen materials, and takes the place of a separate trimming at the top of a ruffle.

A narrow ribbon gathered in this way will make a very pretty trimming for children's dresses.

Match carefully the sewing silk or thread used, and guard against the forming of knots in the gathering thread.

MATERIALS. — The materials required are: A piece of challis, or other soft woolen material, eighteen



ILL. 49.—Gathering Forming a Shell Edge.

inches long and six inches wide; sewing silk or thread to match; "sharp" needles; pencil and ruler or tape measure.

1. Turn down the top edge of the ruffle one inch on the wrong side.

2. Baste it close to the edge with uneven basting.

3. On the wrong side, beginning at the right-hand end,

mark the top edge of the fold at every inch and a half with French chalk or pencil.

4. Three-fourths of an inch below the top edge, and beginning three-fourths of an inch from the right-hand end, make another row of dots one and a half inches apart. These dots must alternate with those of the upper row.

5. Begin with a small knot and several backstitches. (This knot should be hid under the turned edge if possible.)

6. Gather with small running stitches from dot to dot.

7. Keep drawing the thread as you gather. See Illustration No. 49.

Shirring.*

Shirring is done by making any desired number of rows of running stitches parallel with each other. This is sometimes done by running a very fine cord in a tuck and drawing the cord.

MATERIALS.—The materials required are: A piece of material eighteen inches long and eight inches wide; "sharp" needles; scissors; cotton; tape measure.

1. Begin with a small knot and backstitch.

2. Decide on the number of rows wanted and the distance apart of the gathering to be made.

3. Gather from right to left, keeping the rows parallel.

4. Use a single thread.

5. Instead of gathering one row at a time, the entire number of rows may be begun and carried on simultaneously. See Illustration No. 50.

NOTE.—Mark the line for shirring with uneven basting if necessary.

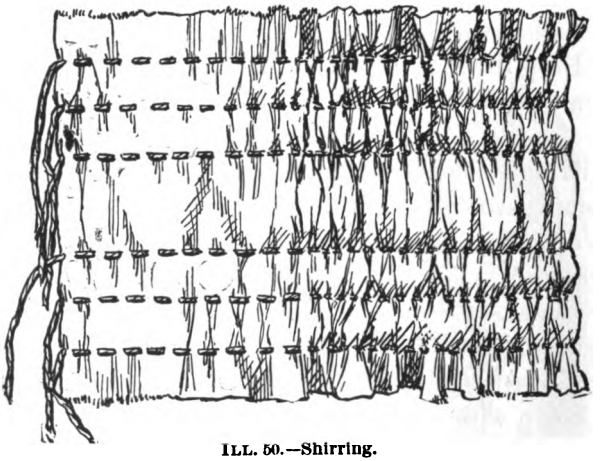
*Advanced work.

Whipping a Ruffle.*

Whipping is used only in gathering very fine and sheer fabrics.

MATERIALS.—The materials required are: A strip of fine cambric or lawn eighteen inches long and five inches wide; a piece of similar material hemmed; cotton; "sharp" needles; scissors; tape measure.

1. Hem the ends and bottom of the ruffle.



ILL. 50.—Shirring.

2. Mark by cross-stitches at the half and quarter lengths.

3. Roll the edge. Follow the directions given for rolling the hem in the chapter on hemming.

4. Use a small knot and single thread.

5. Whip the edge as it is rolled, drawing the thread as every two inches are whipped.

*Advanced work.

Sewing the Ruffle to the Garment.

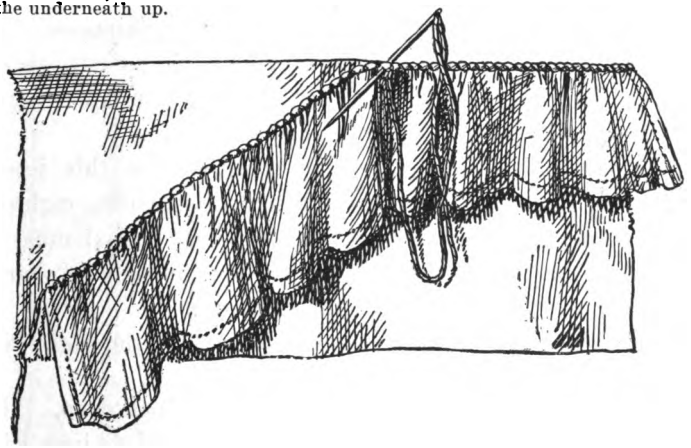
1. Place the wrong side of the ruffle to the wrong side of the garment.

2. Pin the middle of the ruffle to the middle of the hem and quarter to quarter.

3. Draw up the ruffle the required length and wind the thread around a pin.

4. Hold the ruffle towards you and overseam with very fine stitches. See Illustration No. 51.

NOTE.—Many persons prefer reversing the position of the needle in whipping a ruffle, that is, slanting the needle from the top down instead of from the underneath up.



ILL. 51.—Overseaming a Whipped Ruffle to a Garment.

Plaiting.*

Plaiting is used where there is a large amount of material which should be brought into small compass and kept flat.

*Advanced work.

Fashion often requires its use in ruffles, and in bringing the fullness in the back of a skirt into the band.

In many materials, it is necessary to baste the plaited ruffle in two or three places and press it on the wrong side.

Plaits can be lapped if it is necessary to bring a large amount of material into a very small space, as in the back of a skirt.

They may be turned either to the right or to the left. Box plaiting is made by beginning at the centre and laying a plait to the right and another to the left; double box plaiting is made by laying additional side plaits.

A ruching or rose quilling may be made by cutting the material any desired width, on the bias, and plaiting it with a double box plait through the centre.

MATERIALS.—The materials required for this lesson are: A piece of material representing a ruffle, eighteen inches long and five inches wide. The material must be three times the length desired when finished; "sharp" needles; cotton; scissors; tape measure.

1. Place the material on the desk, with the right side up.

2. Lay a plait in the material one-half inch deep. This makes three layers of material, each one-half an inch wide —the two parts of the plait and the material on which it rests.

3. Make a second plait in the material one-half inch deep, bringing it exactly to the underfold of the first plait. See Illustration No. 52.

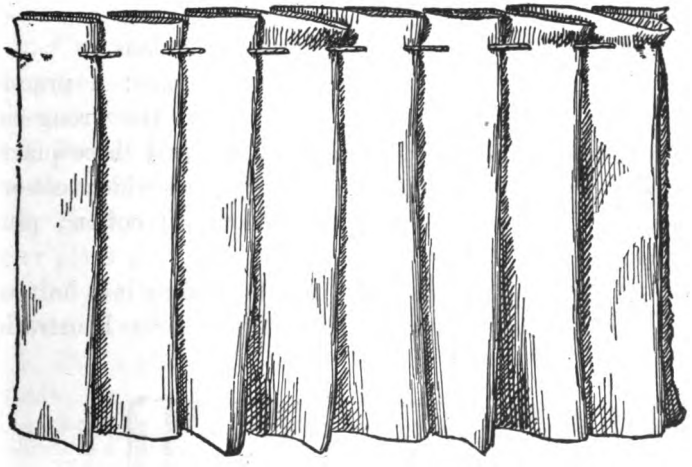
4. Continue laying the plaits in similar manner.

5. Baste with even basting close to the top edge.

6. Baste in the centre and lower edge if the material requires it.

7. Press carefully on the wrong side before taking out the bastings.

8. It is often necessary to tack the plaiting on the wrong side to keep it in shape and to prevent it from flaring; this may be done by using a heavy thread or tacking a line of tape to each plait; these stitches must not show on the right side.



ILL. 52.—Plaiting.

XVIII. BANDS.

Bands Sewed by Backstitching and Hemming.

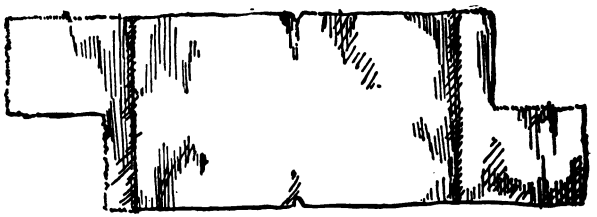
A band is a flat, flexible strip of material on any article of dress, serving to strengthen and confine it.

A band should always be cut with the warp of the muslin, as the cloth is stronger lengthwise than crosswise. Never leave the selvage edge on a band, as it makes it much harder to sew.

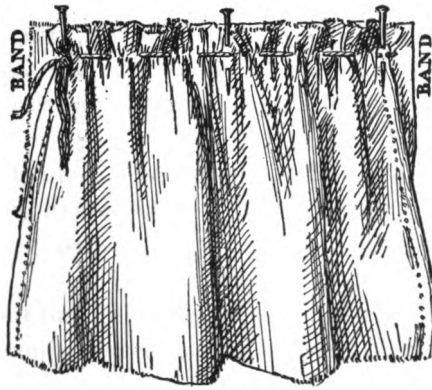
Narrow bands are frequently cut on the bias.

MATERIALS.—The materials required are: A practice piece twelve inches across, gathered with the wrong side towards you and stroked; a band two and three-quarter inches long and two and one-quarter inches wide; scissors; needles, "betweens" or "ground downs"; cotton; pins; tape measure.

1. Mark the middle of the band by folding it in half and cutting a very small notch in each edge. See Illustration No. 53.



ILL. 53.—A Band Cut with Pieces Extending for Button and Buttonhole (to be folded over on the crease).



ILL. 54.—Gathers Basted to Band Ready for Backstitching.

2. Cut the band with a piece extending at each end for the purpose of strengthening it where buttons and buttonholes are to be placed.

3. Prepare the gathers by taking out the pin and loosening them.

4. Hold the *wrong* side of the gathered piece towards you; place the right side of the gathers against the right side of the band, middle of band to the middle of the gathers, edges exactly even.

5. Put a pin in vertically to hold them together in the middle.

6. Pin the end of the gathers one-fourth of an inch from each end of the band.

7. Adjust the gathers so that the fullness is evenly distributed and they are the proper length for the band.

8. Wrap the gathering thread around the pin.

9. Hold the gathers towards you; baste with even basting directly on top of the gathering thread.

10. Sew directly under the basting with a backstitch. Take as short a stitch as possible. See Illustration No. 54.

11. Fasten the ends of the gathering thread and take out the basting.

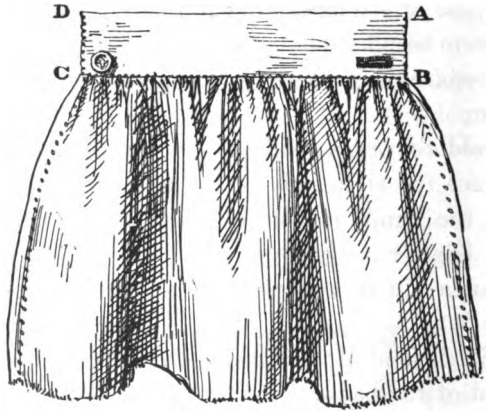
12. Turn down the ends and other side of the band.

13. Fold the band over so that it will just cover the line of stitching.

14. Baste with even basting.

15. Sew the ends with overseaming and the edges with hemming, beginning at A and overseaming to B, hemming to C and overseaming to D.

16. Do not allow the hemming stitches to show through on the right side. **See Illustration No. 55.**



ILL. 55.—Band Completed.

Band Hemmed to the Gathers.

A band such as would be used on a shirt sleeve or other fine needlework is hemmed to the gathers in the way described in this lesson.

In preparing the gathering for this band, the material must be held with the right side towards you.

MATERIALS.—The materials required are: A practice piece of soft bleached muslin, twelve inches across, gathered with the right side towards you and stroked; a band two and three-fourths inches long and two and one-fourth inches wide; needles; cotton; scissors; pins; tape measure.

1. Turn down the long edge of the band one-fourth of an inch.

2. Mark the middle of the band by either a pin or a stitch.

3. Hold the *right* side of the gathers toward you.

4. Pin the middle of the edge of the band to the middle of the gathers each with the right side out.

5. Pin the end of the gathers one-fourth of an inch from the edge of the band.

6. Wrap the gathering thread around the pin.

7. Adjust the gathers so that the fullness is evenly distributed. See Illustration No. 56.

8. Baste the band down with even basting.

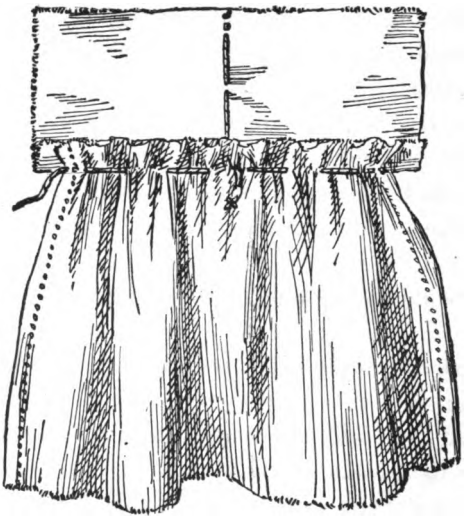
9. Hem on the right side, taking a hemming stitch through each gather.

10. Turn the other edge and ends down, taking care that the edge of the band corresponds with the opposite side, in order that the band may not be twisted.

11. Fold the band over so that it will just cover the gathering stitches.

12. Baste with even basting.

13. Finish by overseaming the ends and hemming the



ILL. 56.—Band Basted to the Gathers Ready for First Hemming.

edge as in a band backstitched to the gathers. (Direction 15 of the preceding lesson.)

Band Overseamed to the Gathers.

This band is generally used on lined skirts. If the skirt is very heavy, two overseaming stitches should be taken through each gather when sewing it to the band.

MATERIALS.—The materials required are: A practice piece, fifteen inches across, gathered with French gathers; a band three inches long and two and one-half inches wide; scissors; needles, "betweens" or "ground downs"; cotton; pins; tape measure.

1. Turn down the four sides of the band one-fourth of an inch.

2. Fold the band over and baste the edges neatly.

3. Find the centre of the band and mark it with a stitch.

4. Place the centre of the band to the centre of the gathers.

5. Band to be placed on the right side.

6. The ends of the material gathered to the ends of the band.

7. Fasten with a pin or loose overseaming stitch, the latter preferred.

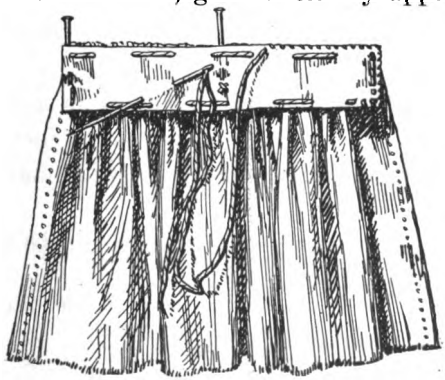
8. Wind the gathering thread around a pin.

9. In sewing, hold the band towards you.

10. Overseam the gathers to the band by taking a stitch through the front part of each little plait or flute. See Illustration No. 57.

Mistakes Likely to Occur in Sewing on Bands.

1. Band twisted when finished.
2. Incorrect slant to stitches.
3. Gathers not evenly distributed.
4. A lack of neatness; general clumsy appearance.



Ill. 57.—Band Overseamed to French Gathers.

XIX. DARNING.

Dress Darning—Straight Tear.

In darning, the parts of a fabric that are torn or separated should be united by inserting new threads in a manner as nearly like weaving as possible. Quality, texture, and color should be considered in selecting materials with which to darn colored or figured fabrics. Examine the groundwork of the material and match the predominating shade.

In fine linen, the darning should be done before sending it to the laundry.

If the material is much strained, it may be well first to draw the edges together with basting stitches, which should be taken out after the darn is completed, or to baste a piece of material under the torn place and darn the edges of the tear down on it.

MATERIALS.—The materials required in a darning lesson are: Needles, "sharps" or fine embroidery needles; scissors; cashmere challis or some similar material to be darned; tape measure.

This table shows the threads that should be used in ordinary darning:

For darning woolen garments..	Ravelings of the material (warp threads), Silk, Filoselle.

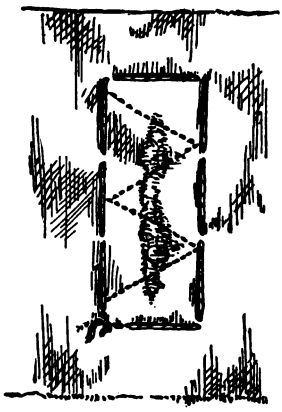
For darning linen fabrics.....	Linen floss or Flourishing thread.
For darning cotton fabrics.....	Cotton thread corresponding in thickness with finest thread in the fabric.
For darning alpaca or mohair..	Hair or Fine silk.

In all darning, a needle should be selected which will carry the thread easily. This thread is usually soft (that is, not twisted as tightly as ordinary thread); consequently there is a tendency to form a lump in the eye of the needle (if too fine), which has to be dragged in and out of the stuff, injuring not only the material, but also the thread or silk used in darning.

ILL. 58.—Basting Defining Length and Width of Darn.

Your materials being ready, proceed as follows:

1. Baste an outline around the tear, beginning one-fourth of an inch above and continuing it the same distance below. (Illustration No. 58.) If the material is dragged or strained, it may be necessary to extend the outline and hold the material in shape with running stitches before beginning to darn. See Illustration No. 59.



ILL. 59.—Preparation for Daring when Material is Ragged.

2. The width of the darn is determined by the width of the tear. (Half an inch is a good width for an ordinary darn.)

3. Use short threads. Do not use a knot or backstitch.

4. Hold the darn over the first finger of the left hand.

5. Begin at A and make a horizontal line of very fine running stitches to B.

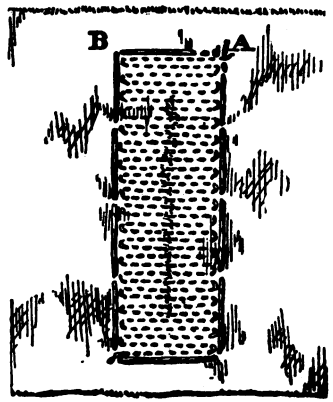
6. Make a second row back to A, leaving a very small loop at the end of each row of darning to allow for shrinkage.

7. The stitches and spaces in the last row must alternate with the stitches and spaces in the row above it.

8. The edges of the tear should be picked up and dropped alternately.

9. Continue the darning until the outline is filled with darning stitches. See Illustration No. 60.

10. Darn on either the right or wrong side of the



ILL. 60.—Dress Darn (Begin to Darn at A).

material, according to the fabric and part of the garment torn.

Angular Dress Darn.

In cases where the tear is much raveled, put a piece of material under the tear and darn the garment down on it.

Cut the piece larger than the tear. Be careful to match the grain of the cloth as well as the figures and stripes in the material.

Draw the tear into place and baste the right side of the piece to the wrong side of the garment; match it exactly.

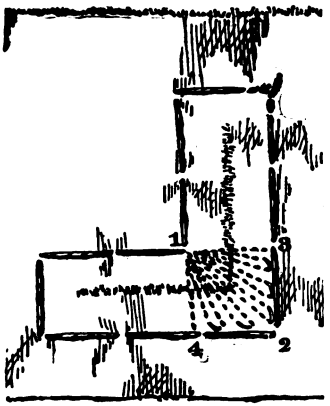
If the hole is large, darn the sides of the tear separately, weaving the ravelings in as you come to them.

After the darn is finished, tack the piece lightly to the garment on the wrong side, or cut it off.

MATERIALS. — Materials required: Same as for dress darning. See preceding lesson.

The process is made easy by the help of the illustration (No. 61).

1. Outline darn by basting.
2. While drawing the needle and thread through the material, hold the two edges of the tear firmly over the first finger of the left hand to prevent it from fraying.
3. Begin at the angle marked 1 and make a row of running stitches out to 2.
4. Make a second row back to 1.
5. Make a third row out to 3.
6. Make a fourth row back to 1.
7. Continue so doing until the triangle thus formed is completely filled, finally bringing the needle back to 1.
8. Next make a row of stitches out to 4.



ILL. 61.—Corner of Angular Dress Darn.

9. Make the following row back to 1.

10. Make a row to 2.

11. Then a row back to 1.

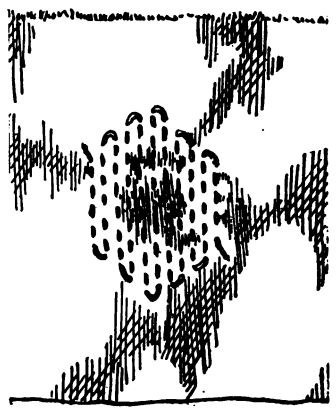
12. Continue until this triangle has been filled. See Illustration No. 61.

13. After completing the corner, finish the darn in the same manner as in the lesson on the straight tear.

14. Dampen very slightly and press on the wrong side.

Strengthening Darn.

This darn consists merely of several rows of running stitches running with the warp of the material, and is used to strengthen weak places where a hole has not actually been worn. It may be of almost any geometrical shape, that of a diamond being the most desirable, as in this shape the strain will not come on one line of weaving. See Illustration No. 62.



ILL. 62.—Strengthening Darn.

Bias Darn.

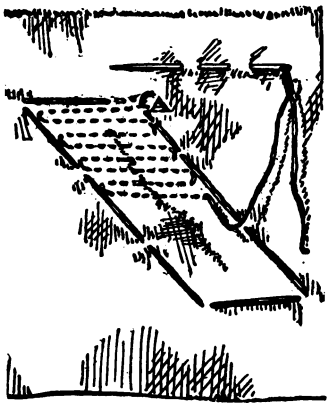
A bias darn is used in mending a cut or tear running across either the warp or woof.

MATERIALS. — The materials required for the lesson are the same as those for the straight darn.

1. Outline the length and width of the darn, following the line of the tear.

2. Use short threads and begin without a knot.

3. Begin darning at A, running the line of darning diagonally across the warp of the material. See Illustration No. 63.



ILL. 63.—Darning a Bias Tear.

4. Continue as in directions given for straight tear.

Stocking-Web Darn.

This darn is used on linen where an actual hole has been worn in the material.

The bias and stocking-web darn are frequently used on table linens to repair holes made by the careless use of a knife.

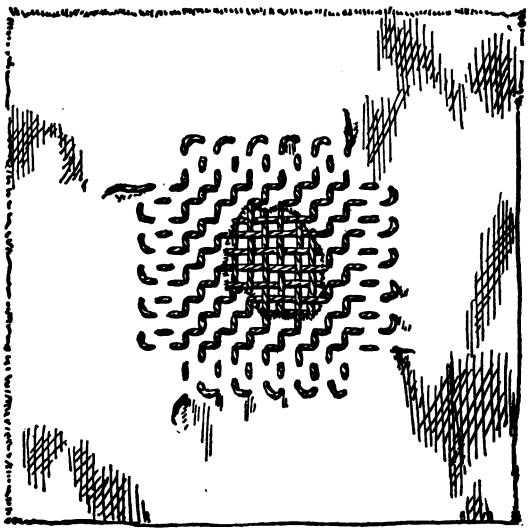
In this darn, the loops left along the edge are sometimes cut.

MATERIALS. — The materials required are: Needles, "sharps" or fine embroidery needles; scissors; linen floss, and a piece of table linen requiring mending.

1. Trim off all loose or frayed edges.
2. Begin as far outside the hole as is necessary to strengthen the fabric.
3. Insert the threads representing the warp.
4. Allow a loop to extend at each row of darning.
5. Finish by weaving in the threads representing the woof. See Illustration No. 64.

Mistakes Likely to be Made in Darning.

1. The darn not extended far enough to cover worn place.
2. The thread at the sides drawn instead of leaving a loop.
3. The work not flat when finished.
4. Carelessness in matching material for darning.



Ill. 64.—Stocking-Web Darn.

Stocking Darning.

Stocking darning is used to repair a hole in any fabric woven with the loop or stocking stitch. From its similarity to weaving, it is sometimes called hand weaving.

The stocking should be darned on the right side of the foot and the wrong side of the leg.

The size of the darn depends on the size of the hole and on the condition of the fabric around the hole.

The shape may be either a square on its sides, a square on its diagonals, or rounded to conform to the shape of the hole.

A darn in the shape of a square on its diagonals, or made to conform to the shape of the hole, is preferred because in this way the strain is evenly distributed, each new thread of darning coming on a new line of weaving.

Always darn holes as soon as they appear.

A strengthening darn (stitches running lengthwise) is extremely useful for strengthening the toe and heel of the stocking; this should be put in as soon as the stocking shows signs of wear.

Laces, especially those with a groundwork or foundation of bobbinet, are frequently mended by darning; in fact, many real laces are made by outlining or darning a pattern on some meshed material.

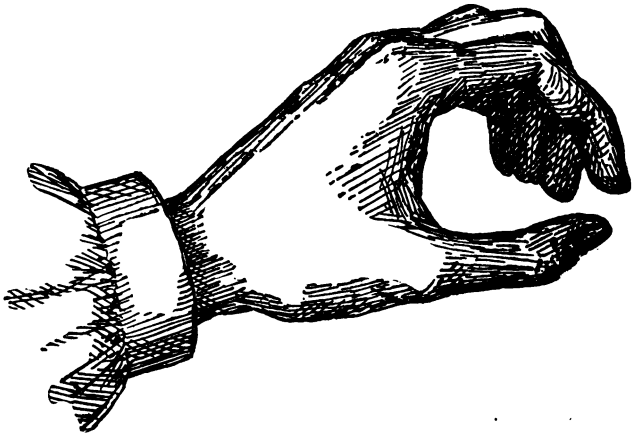
Darning would not be considered such a task if it were looked upon as lace-making, which it is in a humble way.

MATERIALS.—The materials required are: A stocking which the pupil should bring from home; a darning needle No. 6 (a medium number); darning cotton (must be selected to suit the stocking in both color and quality).

Then proceed this way:

1. Select a small hole as the one to be darned.

2. Hold the left hand up, curving the first finger and thumb in the shape of the letter C. See Illustration No. 65.



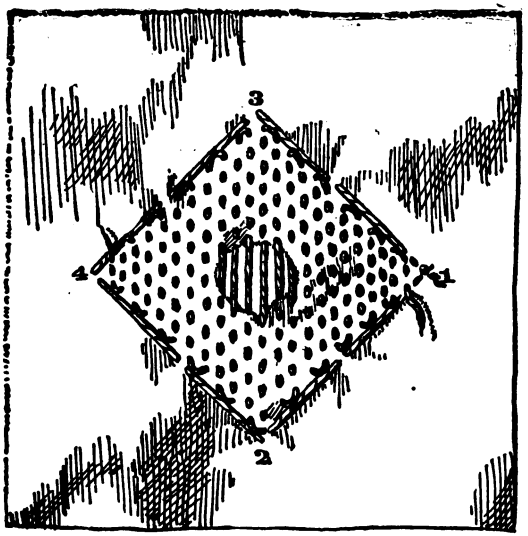
ILL. 65.—Position of the Left Hand in Stocking Darning.

3. Rest hands and try it again, repeating the exercise until you can hold the fingers in position comfortably.

4. Draw the stocking over the left hand, with the hand in this position.

5. See that the weave representing the warp of the stocking runs parallel with the arm.

6. Hold the stocking firmly, but not stretched, over the left hand, with the hole in the centre of the formed C.



ILL. 66.—First Part of the Darn, Showing the Outline.

7. Gather all extra fullness into the palm of the hand.

8. Outline the size and shape of the darn by basting with uneven basting one-half inch outside the hole. The darn is frequently made the shape of the hole instead of a square on its diagonals. See Illustration No. 66.

9. Begin at 1, pointing the needle from you, and make two small running stitches.

10. Leave a half inch of thread; do not use a knot or backstitch.

11. With the needle pointing towards you, make the next row of stitches, taking up the threads of the stocking that were passed over in the preceding row.

12. So continue each row, letting the outline of basting

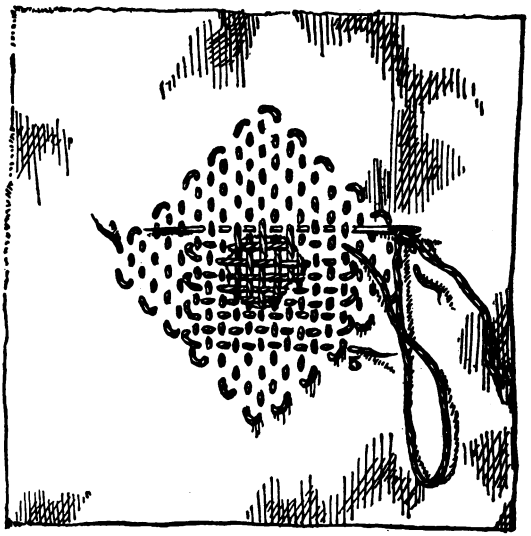
stitches define the termination of each row, being careful to leave the thread loose at each end to form a loop to allow for shrinkage and elasticity of weave.

13. When the hole is reached, take the stitches over one edge and under the opposite edge, reversing this when coming back on next row of darning.

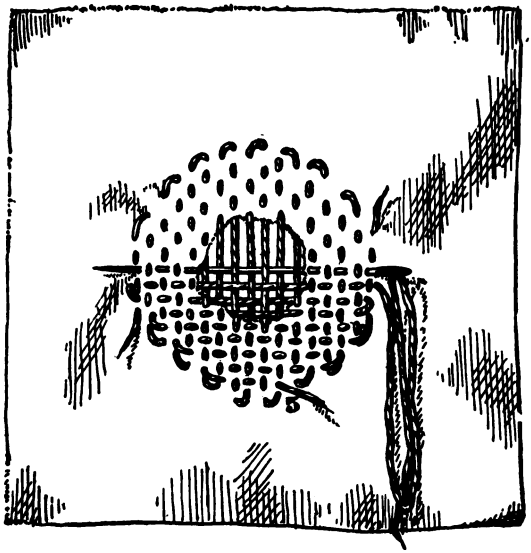
14. Continue making each row a little longer until 2 and 3 are reached. (See Illustration No. 66.) Then decrease in the same proportion to 4.

Filling in the Darn.

1. Begin weaving at No. 5 and pass the needle under the first stitch and over the second, under the third and over the fourth, and so on. In returning, pass over the threads taken up before and under the threads left down.



ILL. 67.—Weaving the Darn (the Shape of Darn a Square on its Diagonals).



ILL. 68.—Weaving the Darn (Round in Shape).

2. Keep each row of darning as close as possible to the preceding one. See Illustrations Nos. 67 and 68.

3. In mending a large hole, smooth out the rough edges, then take a fine needle and thread and overcast the edges, bringing them as near as possible to the proper position. Darn in the regular way.

THREADING THE NEEDLE.

1. To thread a darning or zephyr needle, hold the needle between the thumb and first finger of the left hand.

2. Fold a loop of the thread over the end of the needle.

3. Withdraw the needle and pass the eye of the needle over the loop of the darning cotton.

Kid Glove Mending.

MATERIALS. — The materials required are: Glover's needles, or No. 11 or 12 "betweens"; fine cotton is preferred to silk; be careful to have the cotton match the glove in color.

1. If the rent is very large and a piece of kid can be obtained to match, place the patch of kid on the wrong side of the glove with the right side of the patch to the wrong side of the glove.

2. Hem the glove on the right side to the patch.

3. Trim off all surplus kid on the wrong side.

4. If the hole is small, or kid cannot be matched, make a buttonhole stitch around the edge of the hole. (See page 121 for buttonhole stitch.) Do not pull the thread up tightly, or you will break the edge of the kid.

5. Work a second row of buttonhole stitches through the purl edge of the first.

6. Continue working row after row until the hole is completely filled up.

7. Mend the seams when ripped with very fine overseaming stitches.

XX. PATCHING.

Patching is the art of restoring the worn parts of any garment by inserting better material.

Good patching depends largely on a thorough understanding of the rules and methods of making the garment. This is especially true in repairing all articles of clothing.

Matching the Patch in Color and Fabric.

Care must be taken to see that the patch agrees with the original fabric in color and quality; consequently new material in many cases had better be avoided, and material partly worn substituted.

Materials invariably lose something of their original brightness of color and tint during wear, so that attention to these small details will amply repay the worker, as one of the primary principles of good patching is that the repair, when completed, shall be as little noticed as possible.

Patching Figured and Striped Materials.

In patching striped or figured materials, match the pattern so that, when finished, the continuity of the design is unbroken.

The warp of both garment and patch must run in the same direction. In patching, as far as possible, attach the patch to some seam. Sometimes it is possible to join all

sides in this way, making the work not only stronger, but much neater.

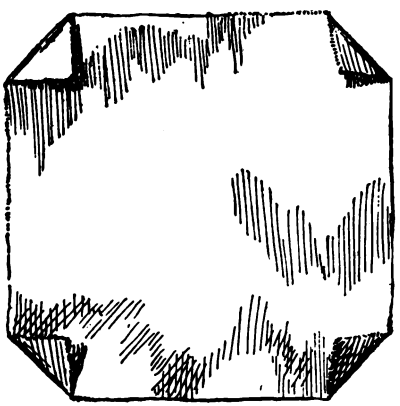
An invisible patch is valuable in more places than on a shoe.

Patches of Different Shapes.

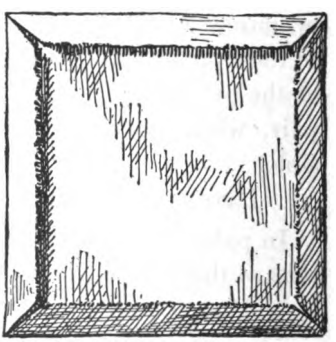
Different shaped patches are frequently used; such as circular, oblong, triangular, half-moon, etc. A half-moon patch is a most excellent shape to use in any case where the edge can be attached to a seam, especially where the strain is very great, as at elbows, knees of boys' trousers, etc.

The size of the patch depends not only on the size of the hole, but also on the condition of the garment around the hole. All patches should be carefully pressed.

Materials.—The materials required for a lesson in patching are: A practice piece, with a hole cut by the



Ill. 69.—Method of Turning Corners of the Patch.



Ill. 70.—Sides and Corners of the Patch Turned.

teacher previous to the lesson; a patch four inches square; cotton; scissors; a ruler or tape measure; "ground downs" or "between" needles.

1. Hold up the patch with the right side towards you.

2. Turn the corners down one-fourth of an inch on the right side. See Illustration No. 69.

3. Next turn down the sides one-fourth of an inch. See Illustration No. 70.

4. Hold it up when finished with the turns towards the teacher.

5. Place the practice piece or garment on the desk with the *wrong* side up.

(Find the centre of the patch by folding it on its diameters.)

6. Place the right side of the patch on the wrong side of the garment or practice piece.

7. See that the centre of the patch is over the centre of the hole, with the warp of the two pieces parallel.

8. Baste close to the edge with even basting. See Illustration No. 71.

Begin to baste in the centre of one side.

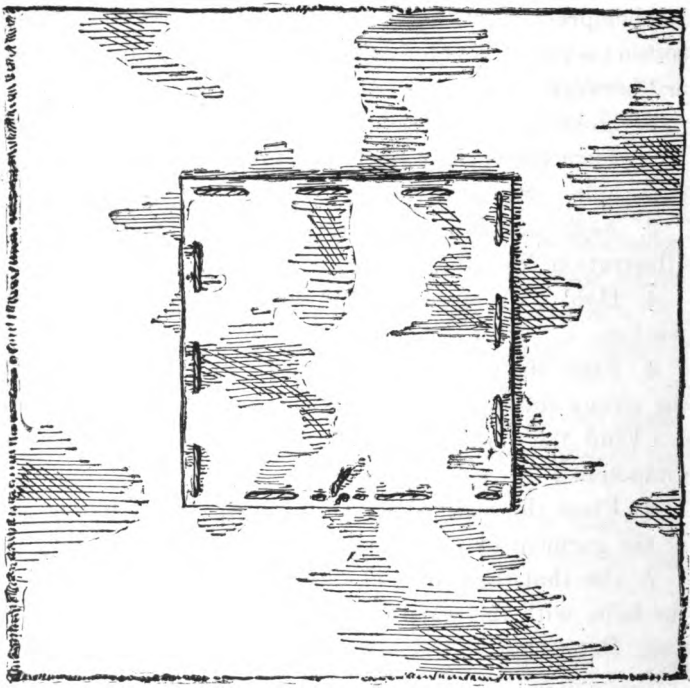
9. Begin to hem in the same place. (By so doing the square appearance of the corners is preserved.)

10. Be careful to hold the patch in the correct position while hemming it. (The patch, which represents the fold of the hem, must turn towards the point of the finger.)

11. Turn the material over, with the right side up.

12. Measure on the right side three-fourths of an inch *from the sewing of the hem.*

13. Draw a square on its sides. (Use a lead pencil.)



ILL. 71.—First Basting of the Patch.

14. Cut out the material on the lines drawn. In this way you get rid of the worn material around the hole.

15. Make a diagonal cut at each corner.

16. Turn the edges under with the needle, keeping the corners perfectly neat and square.

17. Baste the edge of the turns with even basting. See Illustration No. 72.

18. Hem the garment down on the patch (beginning to hem in the centre of one side).

19. Take out all basting stitches.

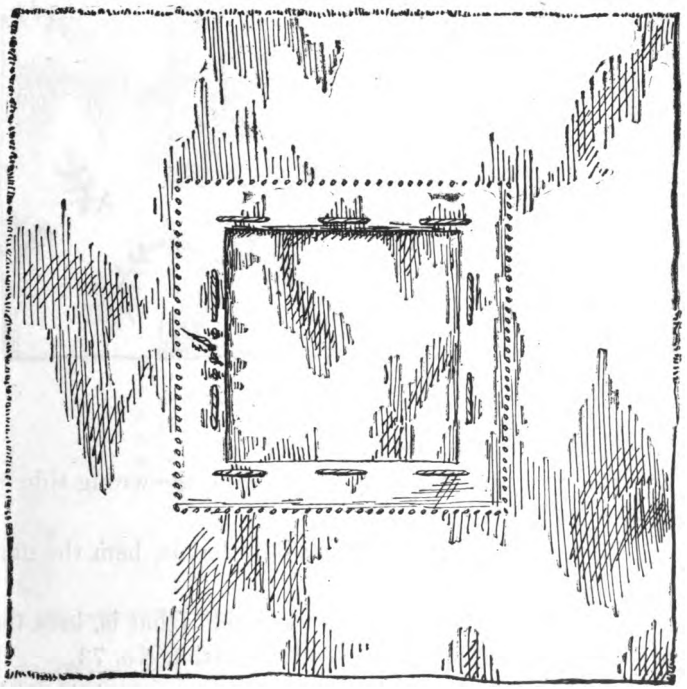
20. Press the patch carefully on the wrong side.

Another Way of Patching.

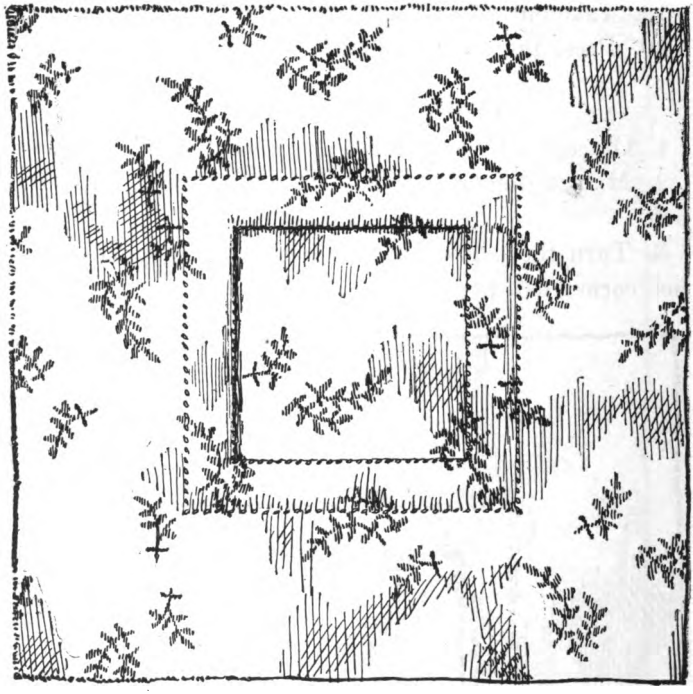
1. Cut out all worn material around the hole.

2. Make a diagonal cut at each corner one-fourth of an inch.

3. Turn the edges down as far as the diagonal cut at each corner will permit.



ILL. 72.—Patch Basted Ready for Second Hemming.



ILL. 73.—Calico Patch Properly Matched.

4. Turn down the patch as before.

5. Baste the right side of the patch to the wrong side of the garment (centre to centre).

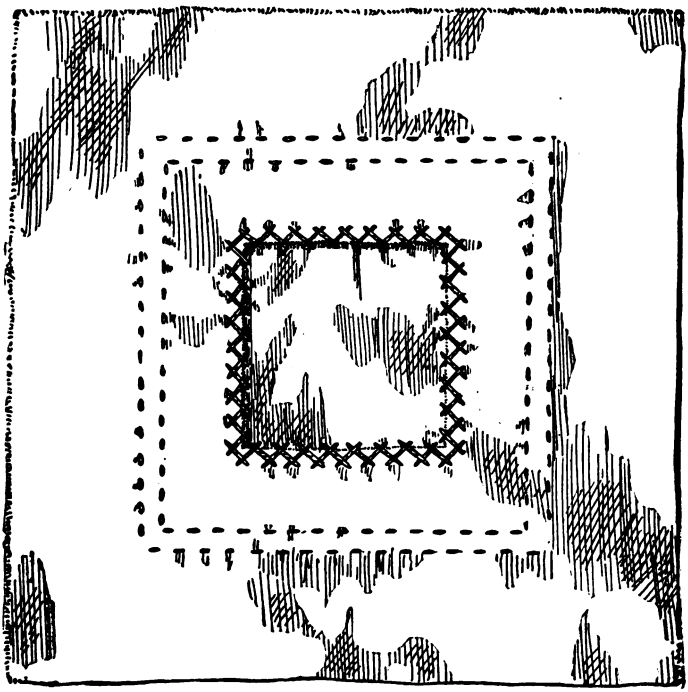
6. Hem it first on the *right* side (that is, hem the garment to the patch).

7. Turn and hem it on the *wrong* side (that is, hem the patch to the garment last). See Illustration No. 73.

NOTE.—This method is preferred by many persons, especially in matching figured or striped materials.

Mistakes Likely to Occur in Patching.

1. Size of patch, either too small or too large.
2. Warp of patch and garment not running parallel with each other.
3. Patch held upside down while hemming.
4. Corners not true and drawn in sewing.

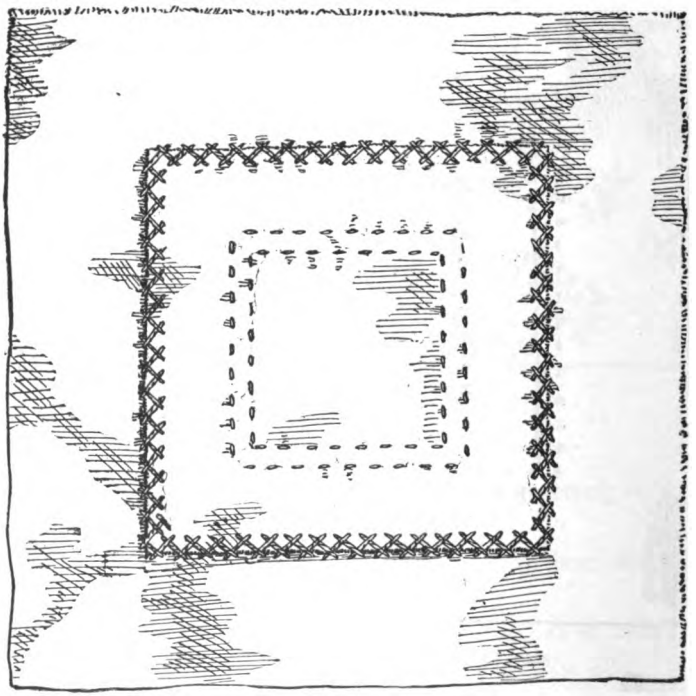


Ill. 74.—Catch-Stitched Patch, Right Side.

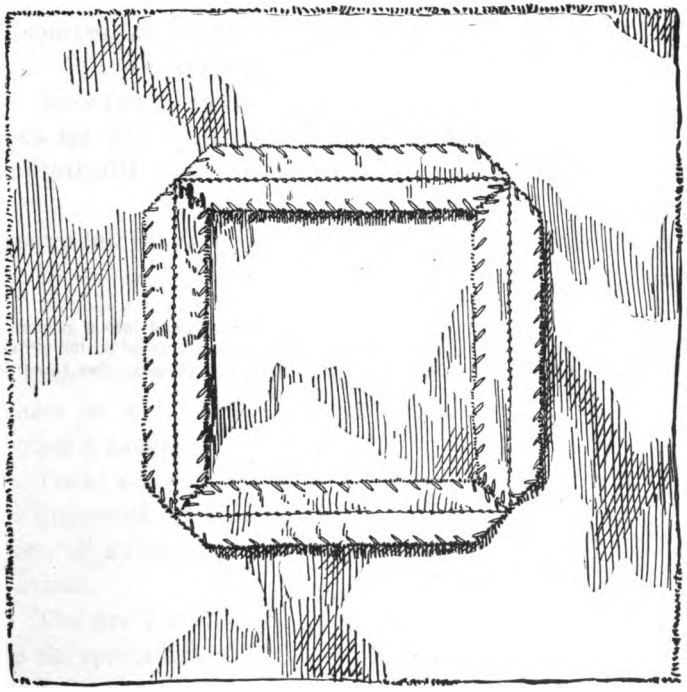
Catch-Stitched Patch.

This method is used in patching garments made of flannel or cloth. The fact that, owing to the thickness of the materials, the edges need not be turned, makes this in many respects the easiest of all patches.

The catch-stitch should be taken through the patch and material together on one side only, because, for the sake of protection, the stitch is carried over the raw edges, and the



ILL. 75.—Catch-Stitched Patch, Wrong Side.



ILL. 76.—The Wrong Side of an Overseamed Patch with the Edges Overcast.

second side of the stitch is taken merely through the single flannel of the garment.

MATERIALS.—The materials required are: Cloth or flannel representing a garment; a patch to match four inches square; "between" needles; silk or cotton, according to material; scissors; ruler or tape measure.

1. Cut out all worn material around the hole.

2. The piece intended for the patch must be three-fourths of an inch larger than the hole when thus prepared.

3. Tack the patch to the wrong side of the garment, with nap of the two pieces running the same way.

4. See that they agree with regard to warp and woof.

5. Turn the material over with the right side up and catch-stitch the garment to the patch. See Illustration No. 74.

6. Catch-stitch the patch to the garment on the wrong side. See Illustration No. 75.

NOTE.—A patch may be either overseamed or backstitched into a garment. When made in this way, the edges should be opened and pressed on the wrong side. The edges may be finished by overcasting or buttonholing. See Illustration No. 76.

XXI. TUCKING.

A tuck is a plait in a fabric or garment, held in place by stitches; it is frequently one of a series laid parallel.

Nothing more completely spoils the appearance of a garment than crooked tucks; therefore in elementary work a paper measure is advisable in order to make the tucks exact in width and space. This measure is sometimes called a gauge.

Tucks are used either by way of decoration, or in order to dispose of extra material in a garment, with the expectation of letting it out as the wearer grows or the fabric shrinks.

The size varies very much, according to taste, as well as to the special needs of the garment.

In cutting out garments, keep in mind the fact that each tuck requires twice its depth with once that amount to rest on.

The space between the tucks depends largely on the thickness of the fabric. For ordinary muslin, the space is frequently made one-half the width of the tuck.

Make an odd rather than an even number of tucks; for instance, make three, five, or seven; not two, four, or six.

When used in groups with space, use an uneven number of tucks and make the space correspond to the width of the group.

Tucks are sometimes made lengthwise and sometimes across the cloth, and always on the right side of the garment.

MATERIALS.—The materials required are: A practice piece of bleached muslin seven inches wide and eighteen inches long, tucks to be made directly above the hem; needles, "sharps"; cotton; scissors; ruler or tape measure; a piece of stiff paper or cardboard.

ILL. 77.-Gauge or Measure Used in Marking Tucks.

1. Make a measure or gauge by folding a piece of paper (so that it will have a stiff edge) three-fourths of an inch wide and five inches long.

2. From the end of the paper, mark with a dot the width of the tuck.

3. Make a second dot the width of the tuck plus the space below the first dot.

4. Make at each dot a straight cut, and from that cut an oblique one. See Illustration No. 77.

5. Hold the right side of the material towards you.

6. Place the *second straight* cut of the measure to the sewing of the hem.

7. Crease by the *top* of the measure.

8. After creasing all the way across, bring the measure back to the right-hand edge and test the correctness of the turn, and at the same time baste under the *first straight* cut.

9. Baste with uneven basting. See Illustration No. 78.

10. Sew, below the basting, with running stitches.

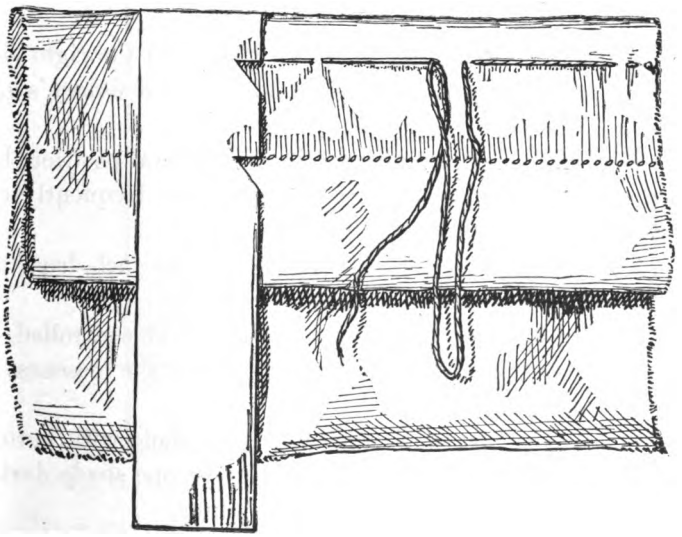
11. Take out the basting stitches.

12. In making a second tuck, place the second straight-cut to the sewing of the first tuck and proceed as before.

13. If an occasional backstitch is used, the tuck should be basted and sewed on the upper side.

Mistakes Likely to Occur in Tucking.

1. Space between tucks uneven.
2. Tucks run on upper side.
3. Width of tuck not suitable for the garment.
4. Tucks overlapped.



Ill. 78.—Position of the Measure while the Tucks are Basted.

XXII. FASTENINGS.

Buttonholes.

A buttonhole is a slit or hole made to receive a button. It is always made on double material, and frequently a third ply is put in to give it additional strength.

The size of the buttonhole is determined by the diameter of the button.

A buttonhole should always be worked on the right side of the garment; and on the right-hand side of women's garments, and on the left-hand side of men's.

Buttonholes are usually cut in a horizontal position, but on shirt bosoms and shirt waists they are frequently cut vertically.

They are generally cut one-fourth of an inch from the edge of the garment.

The spacing between the buttonholes is controlled by fashion, by the size of the buttons, and by the looseness or tightness of the garment.

On woolen materials, work the buttonhole with buttonhole twist. Be careful to have the twist one shade darker than the goods, as it always works lighter.

On muslin and similar materials, buttonholes are generally worked with round ends.

The outer edge of the buttonhole stitch is called "the

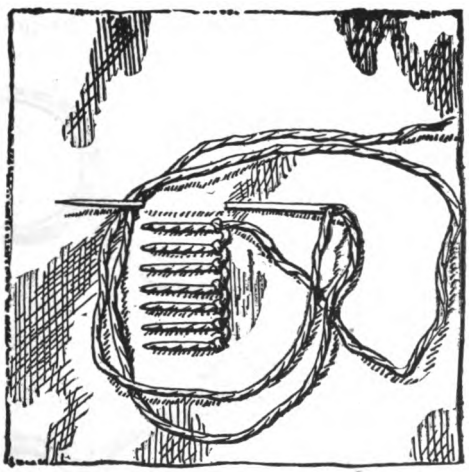
purl edge." Tailor-finished buttonholes are made with a bar across the end farthest from the edge of the garment.

MATERIALS.—The materials required are: A strip of muslin, which, when folded, is two and a half inches wide and eighteen inches long; red cotton; fine white cotton; "between" needles; buttonhole scissors; tape measure.

(It is advisable to learn the stitch before trying to make a buttonhole.)

THE BUTTONHOLE STITCH.

1. Hold the folded edge of the buttonhole strip along the first finger of the left hand.



ILL. 79.—Needle and Thread in Position for the Buttonhole Stitch.

2. Take two small running stitches on the wrong side of the strip, pointing the needle towards you.

3. Bring the needle up from underneath close to the

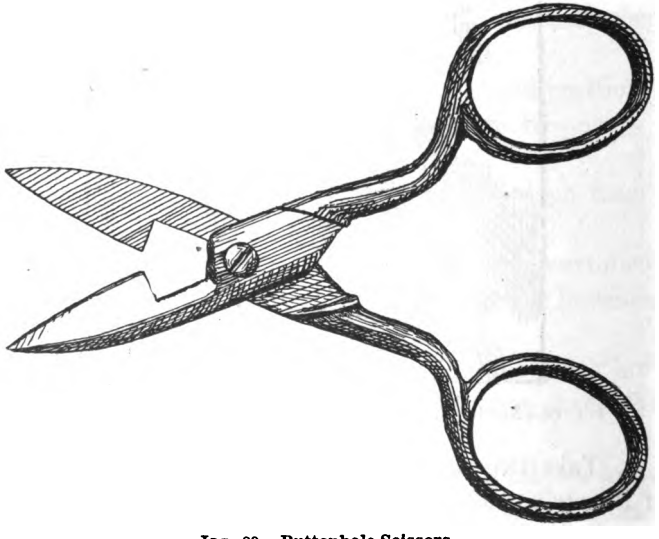
folded edge of the cloth, thus bringing the thread into position for the stitch.

4. Work from you (that is, from right to left).

5. Again, put the needle in the same distance from the edge and directly in front of its first position.

6. With the needle halfway through the cloth, and pointing towards you, take the double thread at the eye of the needle and bring it around and under the point of the needle from right to left. See Illustration No. 79.

7. Pull the needle out, draw the thread so that it will form a horizontal line; in this way the purl edge is brought to the folded edge of the cloth. Make the stitches very close to each other, as the closer the stitches the more durable the buttonhole.



ILL. 80.—Buttonhole Scissors.

8. Be careful to keep the depth and the spacing of the stitch uniform throughout.

9. It is a good plan to practice the buttonhole stitch on the folded edge of the strip of cloth.

Mending the Thread.

1. Draw the thread out of the needle; but if the thread breaks short, open up two or three stitches.

2. Begin the new thread by taking two or three stitches on the wrong side and bringing the needle up through the purl edge of the last stitch.

3. Make three buttonhole stitches over the two threads.

Cutting the Buttonhole.

1. Cut from the notched part of the blade to the point of the scissors. See Illustration No. 80.

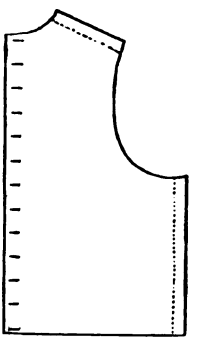
2. Cut with the thread of the muslin, one-fourth of an inch from the folded edge.

3. Cut and work one buttonhole at a time.

4. The diameter of the button gives the size of the buttonhole.

5. Be careful to keep all the buttonholes the same size.

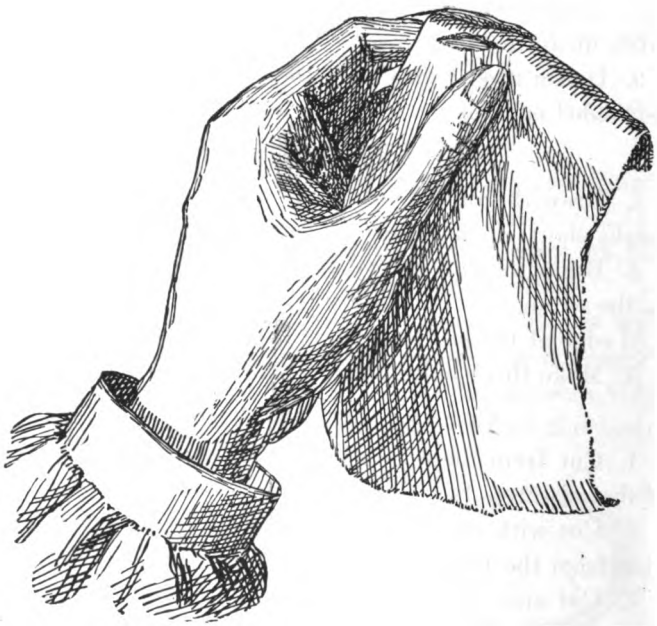
It is well to practice cutting buttonholes on a strip of paper or muslin before cutting the cloth in which buttonholes are to be worked.



Ill. 81.—The Spacing of the Buttonholes on the Back of a Waist.

Overcasting.

1. Hold the buttonhole along the first finger of the left hand, with the folded edge of the muslin towards the wrist.



ILL. 82.—Buttonhole Strip in Position.

2. Begin at 1 and overcast to 2. (Begin without a knot, taking two running stitches on the wrong side.)

3. Take the needle underneath and bring it up at 3, then overcast to 4. See Illustration No. 83.

4. Do not make the overcasting stitches more than three or four threads deep, and in the proportion of five overcastings on each side of a three-fourths-of-an-inch buttonhole.

5. Overcast a buttonhole immediately after it is cut.

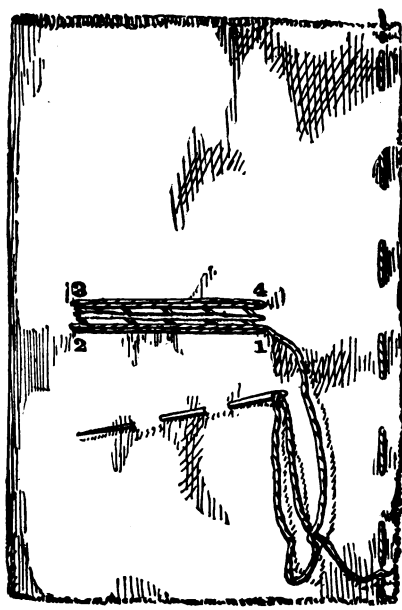
Barring.

1. Slip the needle underneath from 4 to 1, then make a bar along the side of the buttonhole by taking the needle under at 2 and bringing it up at 3 and back to 4 and then to 1. See Illustration No. 83.

2. Repeat this so that you have two bars at each side and two at each end. (The bars at the end should show only on the wrong side.) Be careful not to draw the material.

Working the Buttonhole.

1. Bring the needle halfway through at 1 with the needle pointing towards you; take the double thread at



Ill. 83.—Overcasting and Barring the Buttonhole.

the eye of the needle and throw it under the point of the needle from right to left.

2. Draw the thread out straight.

3. Continue working the buttonhole in this manner until you reach the end which is generally rounded nearest the folded edge; the stitches here should present the appearance of the spokes in a wheel or an eyelet hole.

4. After rounding this end, work along the opposite side until you are directly opposite the first stitch.

5. Finish the last end in a similar manner to the first, taking the needle down through the purl edge of the first stitch and making two or three stitches on the wrong side.

6. If a tailor finish is desired, work along the side from 3 to 4 until you are directly opposite the first stitch.

7. Take the needle down through the purl edge of the first stitch; draw the thread tightly until the sides are brought close together.

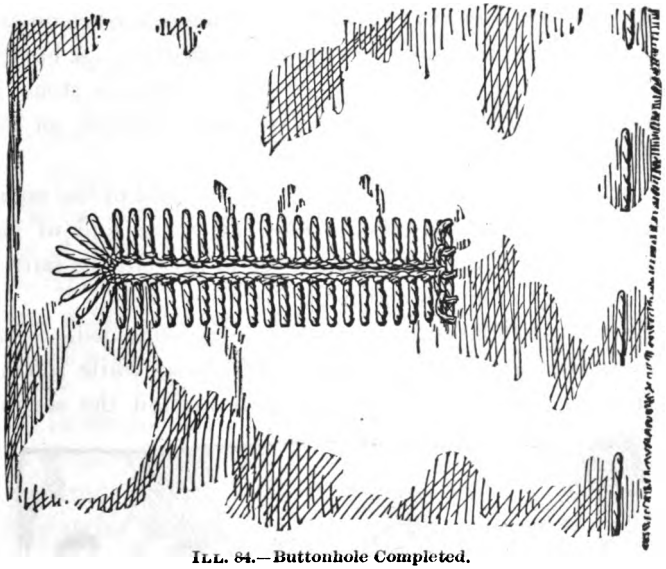
8. Make three bars across this end of the buttonhole. (These bars must be on the right side, and should extend the full width of the buttonhole stitches.)

9. Work over the three bars with buttonhole stitches, keeping the purl edge towards the buttonhole.

10. Take the needle down close to the last stitch and fasten the stitch on the wrong side. See Illustration No. 84.

11. In mending the thread, follow the method in the buttonhole stitch.

12. The buttonhole should be worked with one thread; if it is very large, it may be overcast and barred first and a new thread taken when beginning the buttonhole stitch.



ILL. 84.—Buttonhole Completed.

COMMON MISTAKES IN MAKING BUTTONHOLES.

1. Badly cut hole; out of proportion to size of button. Not cut with the thread of the material.
2. Buttonhole commenced at wrong end.
3. Cotton not drawn tight.
4. Stitch not uniform in depth.
5. Ends finished badly.

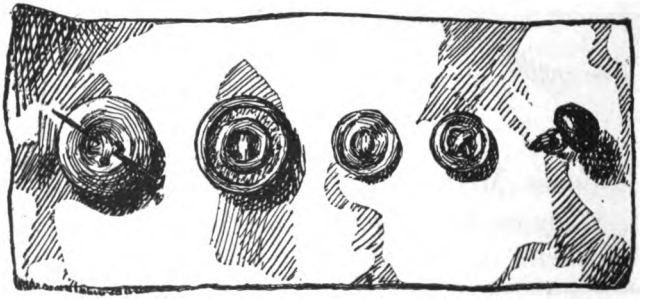
Buttons.

A button is a knob or disk of bone, metal, or wood, often covered, having a shank, perforation, or other means by which it may be sewed to one part of a garment, which it joins to another part by passing through a buttonhole.

Buttons are sometimes sewed to garments for ornament, and are frequently made of very rich materials. A button of gold, crystal, coral, ruby, or other precious stone is worn by Chinese officials, both civil and military, on the top of their hats as a badge of rank.

Buttons are sewed on the right side to a fold of the material; it is often advisable to have an extra fold of the material used as an interlining so as to prevent the button pulling away from the garment.

Buttons without shanks require to be stemmed. This is done by leaving the thread a little loose while sewing on the buttons, and then twisting it around the sewing



ILL. 85.—Various Methods of Sewing on Buttons.

several times, between the button and the material, before fastening the thread.

A tailor puts his stitches through the upper goods and interlining only, pointing his needle back and forth, not up and down.

MATERIALS.—The materials required in this lesson are: A strip of muslin, which, when folded, is two and a half inches wide and eighteen inches long; buttons of various

kinds to illustrate the lesson; needles, "sharps"; coarse silk or cotton; tape measure.

MARKING THE PLACE FOR THE BUTTONS.

1. The buttonholes are necessarily made first.

2. To mark the place for the buttons, lay the right sides of the garment together, and stick pins through the outer ends of the buttonholes.

3. These pins may be taken out and the spot marked either with a basting stitch or French chalk.

4. In sewing a four-holed button, use as fine a needle as possible. (A fine needle prevents making unnecessary holes in the goods.)

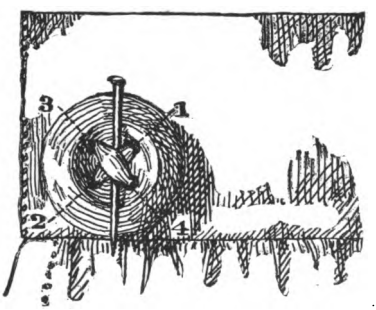
5. Double the thread.

6. Avoid making a knot, as the point of the needle is apt to strike against it and break.

7. Begin with two small backstitches directly on top of the spot marked for the button.

8. Put the needle through hole No. 1 of the button.

9. Place a pin or coarse needle on top of the button and keep it there until the four holes of the button have been filled up. See Illustration No. 86.



ILL. 86.—Sewing on the Button (Position of the Pin).

10. Draw the needle through and take it down hole No. 2.

11. Continue sewing until holes No. 1 and 2 are filled.

12. Sew in like manner through holes No. 3 and 4. See Illustration No. 86.

13. Take out the needle or pin, and draw the button up from the garment; in this way loosening the stitches under the button.

14. Bring the needle up between the button and the cloth very close to the stitches.

15. Wind the thread around these stitches; in this way forming a stem or shank.

16. Take the thread through to the wrong side and fasten it securely.

17. Watch the stitches on the wrong as well as on the right side, in order to keep them neat.

18. The thread is sometimes fastened by taking the needle two or three times through the wrapping between the button and material.

NOTE.—Instead of placing a pin on the top of the button, it is sometimes slipped through the backstitches before the button is put on the needle and withdrawn when you are ready to make the stem.

SEWING ON SHOE BUTTONS.

1. Use linen thread.

2. Double it before putting it through the needle; this *makes four threads* for each stitch instead of two.

3. Make a knot on the end of the thread.

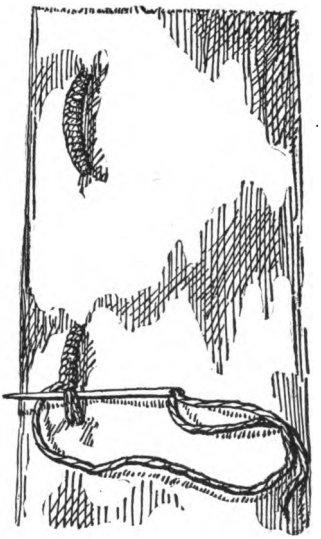
4. If the thread is waxed before sewing, it will prevent its twisting and snarling.

5. Do not finish the thread off at each button, but carry it from one button to the next on the wrong side of the shoe.

6. Fasten securely on the wrong side with a backstitch.

Loops.

Loops are frequently used instead of eyes in connection with hooks, as on chokers of dresses, etc. They are also used instead of buttonholes in extremely thin or thick places, where it is impossible to make a buttonhole.



Ill. 87. — Loops, Showing the Needle in Position.

Loops used in place of eyes should be made to lie very flat on the material. Those intended to take the place of a buttonhole are usually placed at the edge of the material and are made large enough for the button to pass through. Use thread a little coarser than that required for sewing the garment.

Materials. — The materials required in making a loop are: A practice piece or a garment; needles, "betweens" or "ground downs"; cotton or silk as required; scissors.

1. To make the bar, bring the needle up from the wrong side.

2. Make a small knot on the end of the thread.

3. Work from left to right.

4. Make four stitches one-fourth of an inch long directly on top of each other. These form the bar.

5. Begin buttonholing the bar by holding the thread down with the left thumb, and taking the needle under the

bar just made, and over the thread. See Illustration No. 87.

6. Be careful not to catch the cloth in with these stitches.

7. Draw the thread towards you so that the purl edge of the buttonholing will come on the outside of the loop.

8. Fasten the thread securely on the wrong side with a small backstitch.

A Loop in Place of a Buttonhole.

1. When the loop is to take the place of a buttonhole, the foundation stitches must be taken loosely enough to cover the button, and the buttonhole stitch worked very closely over these strands.

2. Push the stitches closely together as each one is made.

Loops of Tape.

Loops for hanging up a garment are frequently made of tape.

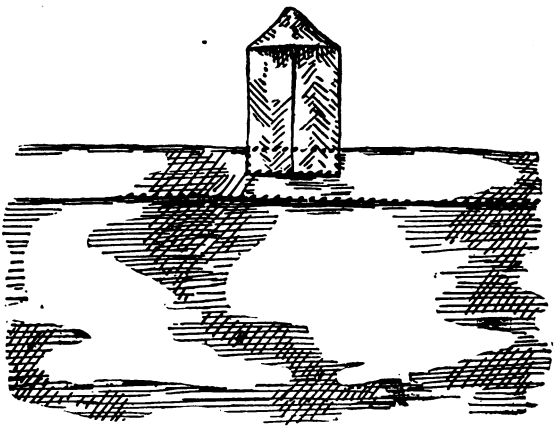
Loops for hanging up dresses are usually sewed flat and are placed in the armholes or collars of dresses and on the belts of skirts. Loops are sometimes sewed on towels in a similar way. Two loops are better than one for most garments, as the weight of the garment when hung up is then more evenly distributed.

Tapes to tie various parts of a garment together may be sewed on in a similar way.

Materials.—The materials required in this lesson are: A towel or any garment requiring a loop; tape or binding;

needles, "ground downs" or "betweens"; scissors; cotton; tape measure.

1. Cut off a piece of tape the desired length.
2. Fold it in the middle; overseam it down one inch;



ILL. 88.—Showing the Method of Sewing a Loop on a Towel.

flatten out the overseam and turn it so that it will form a point at the top.

3. Turn the ends down one-fourth of an inch on the right side, and place them on the wrong side of the towel.

4. Hem the loop on the three outside edges.

5. Turn the towel over on the right side and backstitch it down to the tape. See Illustration No. 88. Or, simply double the piece of tape and first backstitch it on the wrong side, and then turn the loop and hem it to the towel.

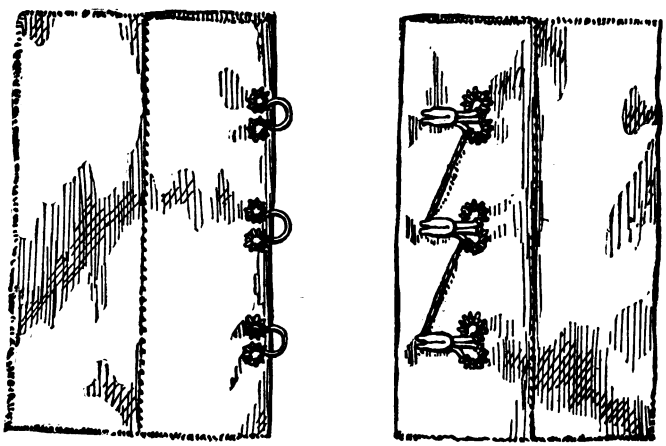
Hooks and Eyes.

Hooks and eyes are used instead of buttons and buttonholes where invisible fastenings are desired.

If the eye is liable to show on a garment, the loop of it should be covered with a buttonhole stitch.

In dress waists, the hooks and eyes are frequently sewed alternately instead of putting all the hooks on one side and all the eyes on the other. This prevents the dress from becoming unfastened.

MATERIALS.—The materials required are: Two strips of material folded similarly to that used for buttonholes; needles, "betweens" or "ground downs"; coarse cotton or silk, as garments require; scissors; a card of hooks and eyes; tape measure.



ILL. 89.—Sewing on Hooks and Eyes.

1. Mark, with a stitch, the places for the eyes on the folded edge of the strip of muslin.

2. Make a small knot.

3. Place the eye on the wrong side of the material, with the loop extending a little beyond the edge.

4. Hold the eye firmly in place with the thumb and first finger of the left hand.

5. Overseam closely around the rings of the eye, being careful not to let the stitches show through on the right side.

6. Take two or three stitches over the loop of the eye above the ring. Do not break the thread, but carry it from one eye to the next.

7. Mark the place for the hooks, by placing the wrong side of the eyes to the strip on which the hooks are to be sewed and marking it with a stitch.

8. Place the hook as far inside the edge as the eyes extend beyond it; hold it firmly in place.

9. Overseam closely around the rings and across the back of the hook. See Illustration No. 89.

10. Carry the thread as in sewing on the eyes.

Eyelet Holes.

An eyelet is a pierced hole, worked with an embroidery or buttonhole stitch, to prevent it from fraying. Eyelet holes are frequently used when it is desirable to lace instead of fasten a dress in another way. They are also used on shirt fronts for studs.

MATERIALS.—The materials required: The hem of the practice piece may be used; "betweens" or "ground down"

needles; cotton; a piercer (sometimes called a stiletto); scissors; tape measure.

1. Push the piercer carefully through the muslin until the hole is made the desired size.

2. Bring the thread up from the wrong side and work the edge of the hole over and over with very close, even stitches.

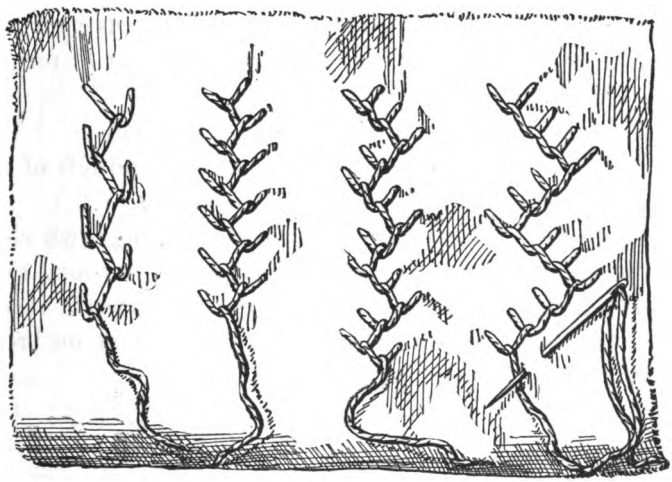
3. If the buttonhole stitch is used, the purl edge should form a ring on the surrounding material and not fall on the edge of the hole as in a buttonhole.

4. After it is worked, again push the piercer through the eyelet to perfect the shape.

XXIII. DECORATIVE STITCHES.

Feather or Brier Stitch.

This stitch is used as a pretty finish in all kinds of sewing, and is frequently used to take the place of backstitching, as it is so much less of a strain on the eye.



ILL. 90.—Single and Double Brier Stitch.

The pattern may be varied by taking a slanting instead of a straight stitch; and also by making two, three, or even four stitches on each side. See Illustration No. 90.

MATERIALS.—The materials required in learning the feather stitch are: A quarter of a yard of flannel; embroid-

ery silk; needles, either a zephyr needle or "sharps"; scissors; the stitch is usually worked in crochet or embroidery cotton, on cotton goods; in silk or woolen thread, on woolen goods; and in silk, linen floss, or flourishing thread, on linen.

1. Use a small knot.
2. Bring the needle up from underneath.
3. Work on the right side of the material.
4. Hold the thread down with the thumb of the left hand.
5. Take a stitch, pointing the needle towards you.
6. Carry the thread under the needle so as to form a loop-stitch.
7. Always draw out the thread towards you.
8. Take a stitch alternately on the right and left of the thread held down. See Illustration No. 90.
9. In mending the thread, take the needle down close to the last stitch and fasten it securely on the wrong side.
10. Bring the new thread up from underneath inside of the notch formed by the last stitch, so that no break may appear in the work.

Catch-Stitch.

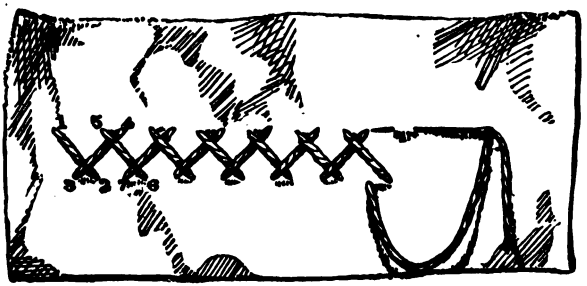
The catch-stitch is principally used on flannel or woolen material to keep the seam flat after it has been sewed and pressed.

It is sometimes used in patching (see page 114); in fastening whalebones to the seam of a dress; in tacking interlining together; and is frequently associated with outline stitch in fancy work.

MATERIALS.—The same materials are required as in making the brier stitch.

1. Use a small knot if it can be hidden; if it cannot be hidden, begin with a backstitch.

2. Begin at the left-hand side and *sew towards the right, always pointing the needle from you* (that is, begin at 1, take the needle through from 2 to 3, then from 4 to 5, etc.). See Illustration No. 91.



ILL. 91.—Catch or Herringbone Stitch.

3. See that the needle, when in position, forms a horizontal line.

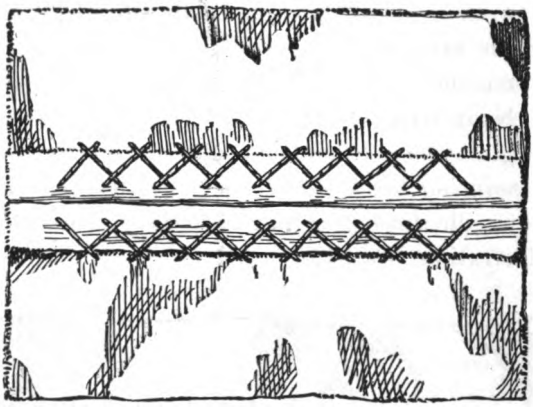
4. Fasten the thread on the wrong side by a small backstitch.

5. In mending the thread, guard against any unnecessary break in the stitch.

6. Flannel seams are catch-stitched in three ways.

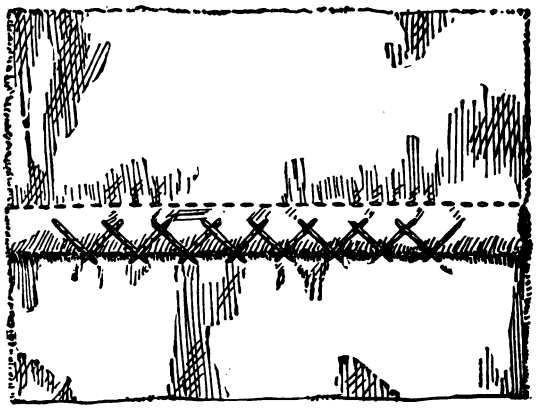
WAYS OF ARRANGING SEAM FOR CATCH-STITCHING.

7. By opening the seam and catch-stitching the raw edges *on each side* to the garment. See Illustration No. 92.

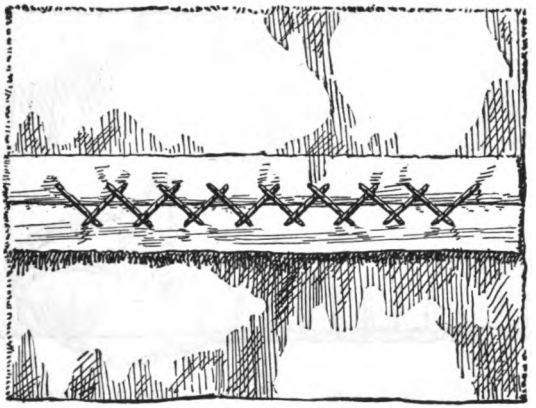


ILL. 92.—Seam Pressed Open and the Raw Edges Catch-Stitched on Each Side to the Flannel.

8. By pressing both edges of the seam down together on the garment and securing them with *one row of catch-stitching.* See Illustration No. 93.



ILL. 93.—Both Edges of the Seam Pressed to One Side and Catch-Stitched.



ILL. 94.—Seam Pressed Open and Catch-Stitched down the Centre.

9. By opening and pressing the seam quite flat and catch-stitching it *down the centre.* See Illustration No. 94.

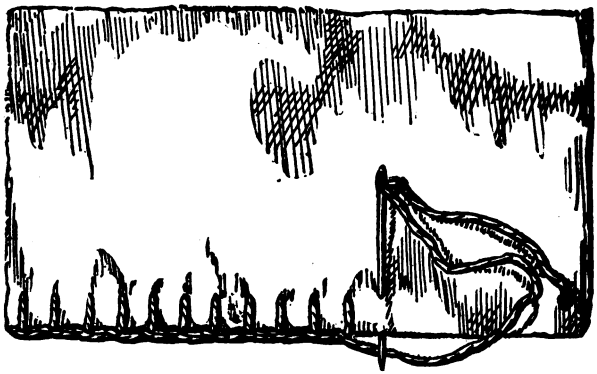
Blanket-Stitch.

The blanket-stitch is used to secure and ornament the edges of woolen materials, especially blankets. It closely resembles a buttonhole stitch, the single purled edge being the only difference. If made without any intervening space, it is used in embroidering scallops and sometimes takes the place of overcasting.

MATERIALS.—The materials required are the same as for the brier stitch.

1. Begin at the *left-hand side* and work *towards the right.*

2. On the wrong side of the material, take two running stitches, pointing the needle to the left; these should be taken one-eighth of an inch above the edge of the material.



ILL. 95.—Buttonhole or Blanket-Stitch, with the Needle in Position.

3. Bring the needle through to the right side, pointing the needle towards you.

4. Hold the thread down with the left thumb; insert the needle one-eighth of an inch to the right and parallel with the first stitch.

5. Do not draw the thread tightly. See Illustration No. 95.

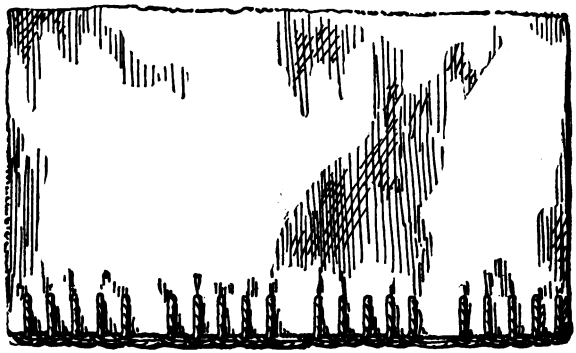
6. Fasten the thread by taking the needle through to the wrong side and making a few running stitches to the left. These should not show through on the right side.

7. Care should be taken, in fastening and beginning new threads, to preserve the regularity of the stitch.

8. The stitch may be varied by following the suggestions found in the illustrations numbered 96, 97, and 98.

Chain-Stitch.

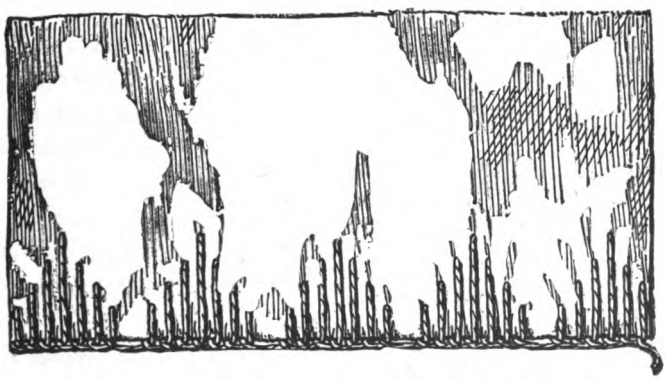
The chain-stitch is an ornamental stitch, resembling the links in a chain. The chain-stitch should be made loosely.



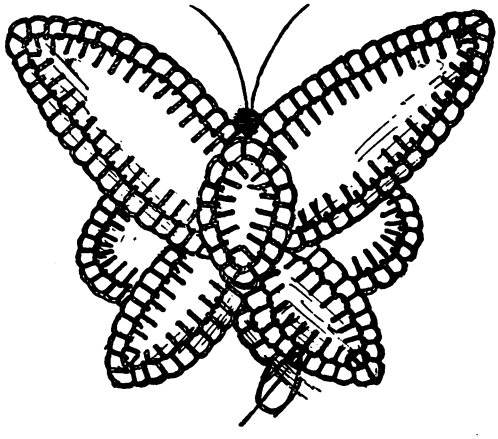
ILL. 96.—Buttonhole Stitch unevenly Spaced.

MATERIALS.—The materials required are the same as for the brier stitch.

1. Work towards you, holding the material over the first finger of the left hand.
2. Make a very small knot.
3. Bring the needle up from underneath.

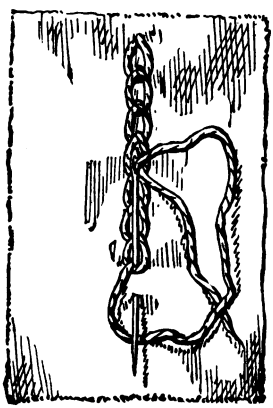


ILL. 97.—Showing How the Buttonhole Stitch may be Varied.



ILL. 98.—Buttonhole Stitch Used in Fancy Work.

4. Hold the thread to the left with the thumb; put the needle back into exactly the same place where the thread comes out, and take a stitch through and over the thread. A loop stitch will be the result.



ILL. 99.—The Chain-Stitch.

5. In making each new stitch, the needle must be put inside the loop into exactly the same hole from which the thread comes out, taking the same amount of material on the needle for each stitch. See Illustration No. 99.

6. Fasten on the wrong side with a backstitch.

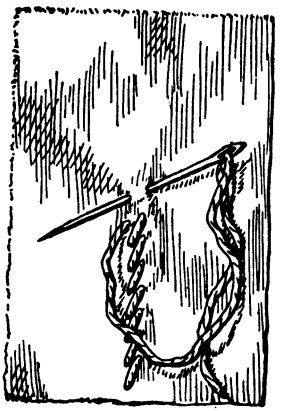
Cable-Chain Stitch.

The cable-chain stitch is a slight variation of the ordinary chain-stitch. Instead of putting the needle through the last stitch made, it is put in just outside of the loop; this gives a much richer effect.

Outline or Stem-Stitch.

The outline-stitch is frequently used in embroidery for defining delicate lines and emphasizing the edges of designs.

In outlining a circle, always work it so that the silk, when drawn through, lies toward the inside of the curve, when you are about to take the next stitch.



ILL. 100.—Outline or Stem-Stitch.

To avoid puckering, be careful that the material held over the first finger of the left hand is perfectly smooth and straight. Never hold the material on the bias, no matter what the direction of the line that is being followed.

MATERIALS.—The materials required are: A piece of "art linen"; embroidery or sharp needles; linen floss or filoselle.

1. Work from you; hold the material over the first finger of the left hand.
2. Make a small backstitch on the wrong side.
3. Bring the needle up from underneath and make a

slanting stitch, pointing the needle *towards* you. See Illustration No. 100.

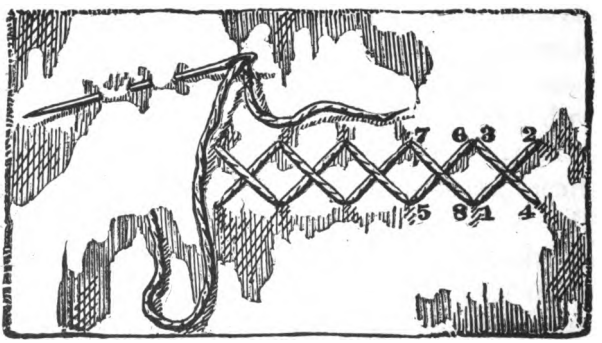
4. Take a long stitch forward on the upper side and a short stitch backward on the under side.
5. Keep the thread to the right of the needle.
6. Study sample for size of stitch.
7. Do not draw the stitches tightly.
8. Fasten on the wrong side with a backstitch.

Cross-Stitch.

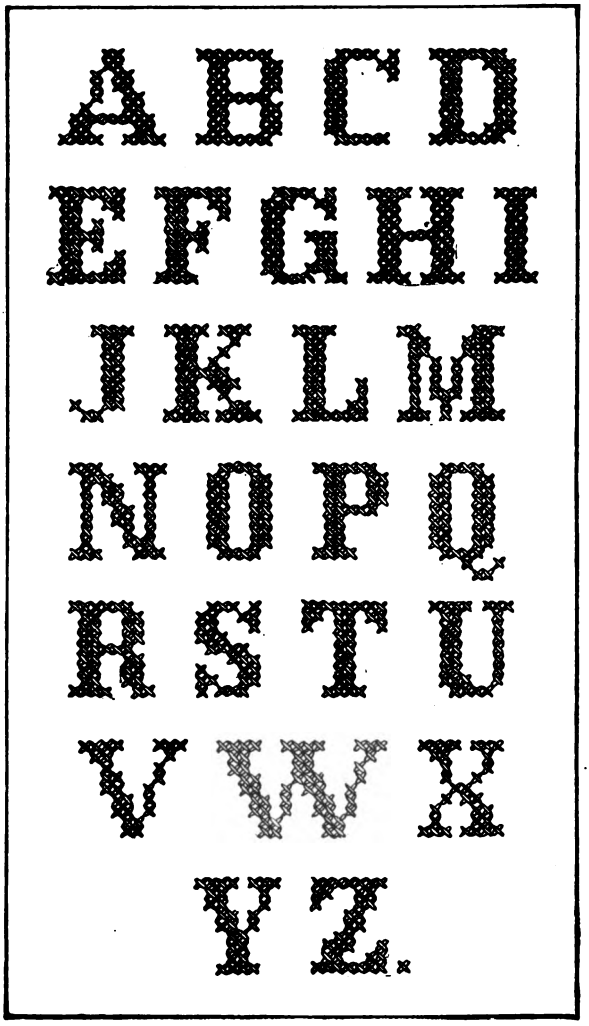
This stitch is used for marking undergarments and household linen, and in dressmaking as an ornamental method of sewing in waist bands.

MATERIALS.—The materials required are: Coarse canvas; zephyr and zephyr needles; scissors.

1. Do not use knots.
2. Leave an end of thread on the wrong side to be held in place by the first stitches made.



ILL. 101.—Cross-Stitch Used in Marking.



ILL. 102.—Letters for Marking.

3. *All stitches must cross in the same direction.*

4. Bring the needle up from underneath at the lower left-hand corner of the square of canvas intended for the stitch.

5. Take the needle down at the upper right-hand corner, and bring it out at the upper left-hand corner.

6. Take the needle down at the lower right-hand corner, and bring it out at the lower left-hand corner of the next stitch. See Illustration No. 101. Or,

7. Bring the needle up from underneath at 1, taking it down at 2 and bringing it out at 3. Cross over to 4, and bring it again out at 5, thus completing one stitch.

8. Be careful to have the back of the work look neat.

9. In patterns and marking where upright rows of stitches occur, it saves time to work the entire number to the top with half stitches and then come back over each one to the bottom.

Hemstitching.

Hemstitching is a fancy method of stitching hems in which threads of the material are drawn and separated.

The number of threads drawn will depend largely upon the coarseness or fineness of the material.

If the fabric is much stiffened, rubbing it between the hands will take out the stiffening and make the threads easier to draw.

MATERIALS.—The materials required are: Linen crash or canvas; "between" needles; cotton suitable to material.

1. Draw one thread at a time, and draw it the entire length of the cloth.

2. After the proper number of threads have been drawn, turn and baste the hem close to the line thus made.

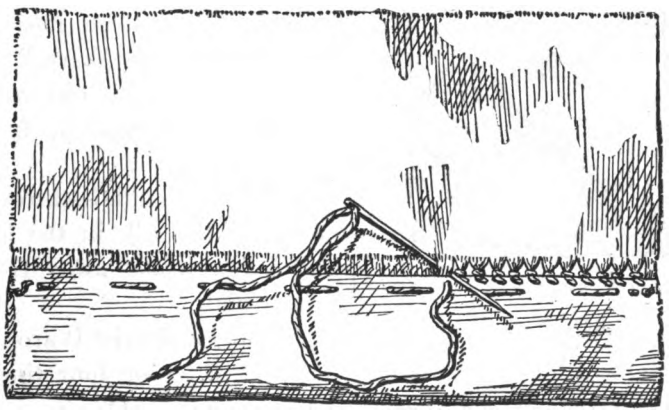
3. Baste with even basting.

4. Sew on the wrong side.

5. Hold it along the first finger of the left hand with the hem towards you.

6. Begin at the right-hand side and secure the ends of the thread as in ordinary hemming.

7. Point the needle towards you and take up three threads and draw it through. Hold the thread firmly with the left thumb. See Illustration No. 103.



ILL. 103.—Hemstitching (the Needle in Position).

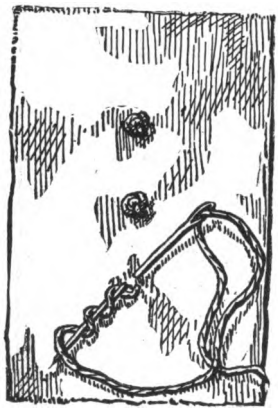
8. Draw the cotton tightly and take an ordinary hemming stitch to the left, close to the threads just drawn together.

9. Proceed in like manner the entire length of the hem.

French Knot or Seeding.

This stitch is used in embroidery to represent the seeds in flowers, and is frequently combined with other decorative stitches in geometric or other conventional designs.

If the material is heavy, carry the thread from knot to knot without breaking it. If the knot is made on sheer material, where the thread would show through, the thread must be fastened at each knot.



ILL. 104.—French Knots.

MATERIALS. — The materials required are: A piece of flannel or "art linen"; linen floss or embroidery silk; "sharps" or embroidery needles; scissors.

1. Bring the needle up from the wrong side.

2. Make a small backstitch.

3. Hold the silk in the left hand a few inches away from the material.

4. Take the needle in the right hand and twist it around this portion of the embroidery silk three or four times. See Illustration No. 104.

5. With the silk still held firmly in the left hand, carry the point of the needle back two or three threads beyond where the silk was first brought through.

6. Hold the knot in place with the left hand and pull the underneath silk quite tight, so as to secure the knot on the wrong side.

A Fan of Stitches.

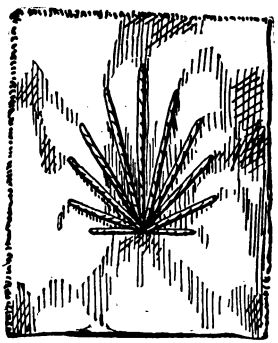
This stitch is generally used to finish and secure the bone casings of a dress waist or corsage.

MATERIALS.—The materials required are: A piece of flannel; embroidery silk or twist; "between" needles; tape measure.

1. Fasten the thread securely on the wrong side with a backstitch.

2. Begin with the centre stitch and make five stitches on each side, gradually shortening each one. See Illustration No. 105.

3. Make several backstitches on the wrong side to fasten the end of the thread.



ILL. 105.—A Fan of Stitches.

XXIV. A LESSON IN ECONOMY.

Shakespeare makes one of his characters say, "Costly thy habit as thy purse can buy," but much more than mere cost must be considered in order to regulate our expenses wisely in the matter of dress.

An everyday dress, for example, should be made of cloth that will not shrink or roughen if wet, that will not fade when exposed to the light, and that has no loose threads in the weave to catch and draw. If intended for winter wear, it should have warmth without much weight; if for summer, it should be cool and thin without being flimsy. Good homespun, merino, cashmere, serge, cheviot, and broadcloth are standard materials, and far more serviceable than so-called novelties for which a high price is charged on account of some peculiarity in the weave. In summer goods, lawns, percales, linens, ginghams, dimities, grenadines, China silk, and taffeta are suited to various uses, and all are serviceable and hold their own in the favor of good buyers, in spite of the many fancy materials that are "made to sell."

All cheap and pretentious cloths should be avoided. They are manufactured to deceive persons who know little about the real value of goods. Spend the same amount of money for a plain standard material, and the garment will be far more satisfactory at the first and will last much

longer. Important as careful mending is, a great deal of mending may be saved by buying only substantial goods that are even in warp and woof and closely and firmly woven.

Dresses should be appropriate to the occasion. Elegance of material has no place in a walking dress, for example.

They should not be overloaded with ornament at any time. A good gown well fitted and carefully made from simple, appropriate goods is far better than one made of inferior material and loaded with trimmings. If lace or embroidery is used at all, it should be good of its kind. Cheap trimming of any sort cannot be made to appear artistic.

Clothing will look better and wear longer if properly cared for. Careful folding, brushing, and cleaning have much to do with the appearance of a wardrobe. Garments should be hung up with double loops or on curved hoops.

If a garment is to be remodeled, it should not be worn until it is very shabby, but should be carefully ripped apart, brushed and shaken in the open air. If the material can be turned, remove all stains by stretching it out on a clean, smooth board and scrubbing it with a soft brush and soap and warm water, rinsing such places by holding the material over a bowl and pouring water through it. Be careful not to stretch it while doing this. Lay a cloth over it and press on the wrong side while it is still damp.

If the material is very much soiled and worn, soak a small quantity of soap bark in warm water overnight; strain through a fine cloth; if any woody particles come

through, strain again. Put this suds into two tubs; add warm water until it is about 98° Fahrenheit. Place the fabric in the first tub, and knead it as you would bread. Never rub soap on the fabric or use a washboard. Keep turning it over and kneading until you have taken out as much dirt as possible. Many of the washing machines are very good for this purpose. Fold the material carefully and put it through a wringer; repeat this process through the second tub. Rinse it in water, which is of the same temperature as the first; and make sure that all soap is out of the material before finally putting it through the wringer. If the wringer creases the cloth, take it out of the rinsing water and hang it, by the selvage or straight edge, upon the line to drain and dry. When nearly dry, iron it with a piece of goods between the material and the iron. Care should be taken in ironing not to flatten the threads of the fabric. Silks, ribbons (except white), kid gloves, etc., can be best cleaned with naphtha, but as this is highly explosive, it must be used in the open air, away from fire. Delicate fabrics had best be sent to the professional cleaner.

In remaking any material, it is generally advisable to combine it with some other fabric. Frequently this may be done by making a yoke or vest, cuffs and collars on the waist, and introducing a panel or bias fold on the skirt, being careful to select materials whose coloring will be low in tone and that will not attract attention to any lack of freshness in the original goods.

XXV. COLOR IN FABRICS.

No matter how well garments are cut and sewed, how perfectly they are fitted, or how costly the material from which they are made, the person who does not understand the use of colors in their relation to fabrics cannot select and make satisfactory clothing. An understanding of color is, therefore, very important.

A rainbow is made up of the colors violet, indigo, blue, green, yellow, orange, and red. These colors and all others, with their thousands of shades and tints, can be made by mixing red, blue, and yellow together in various proportions and adding black to darken (that is, to produce a shade of the particular color desired), or by adding white to lighten it (that is, to produce a tint). Hue is the characteristic of a color which first appeals to the eye and distinguishes it from any other, as red, blue, green. Tone is the grade of a color as it passes from light to dark—from tint to shade.

Red, yellow, and blue, combined in the right proportions, will make white. It follows, then, that combinations of these colors, if properly put together, will also produce white. The colors resulting from such combinations contrast harmoniously, and are called complementary colors. The complementary colors, besides purple and green, are: Carmine and bluish-green, vermilion and turquoise blue,

orange and ultramarine, yellow and bluish-violet, yellowish and purple violet.

Red and yellow are spoken of as warm colors, and blue and violet as cold. Green is neutral and is, therefore, one of the most restful colors to the eye. Gray and white, which is at the same time no color and a union of all colors, are often called neutral. All colors seem brighter on black ground and darker on white ground.

Color is an important element in the design of cloth. Whether the pattern be striped, checked, figured, or an intermingled effect, it obtains its outline and detail from the method of coloring adopted, and to remove the color would, in many cases, erase all design and ornament. The color, therefore, often determines whether a certain material shall be used or not.

The material, also, has much to do with the combining of colors. For instance, the brilliancy of satin and the sheen of silk unsuit them for use with many kinds of woolen goods, particularly the rougher sorts, even though the colors of the two materials harmonize. On the other hand, velvet lends itself to a happy blending of color on account of its soft lights and rich shades; while the fullness, the delicacy, and depth of color in woolen materials offer great possibilities in the way of harmonious combinations.

Dress is a form of decoration, as well as a means of comfort, and the well-dressed person usually selects quiet colors, or, if stronger colors are used, they are carefully chosen and combined so as to produce a harmonious effect. In general, it may be said that combinations are improved

by avoiding the contrast of bright colors. The dull greens and blues of Scotch plaids and the soft colors of Oriental rugs are examples in point. An India shawl, in which the gayest colors are used, is kept low in tone by the black outlines, which prevent violent contrasts in bright colors. Nature is the best teacher in the use of colors. In the plumage of the humming bird, the feather of the peacock, the lining of a shell, the carpet of moss and lichen in the woods, are found lessons in color harmonies which no painter or weaver ever surpassed.

A particular color in a garment is becoming only if it harmonizes with the complexion of the wearer; but in proper material, white is suitable to all ages and complexions. It is worth while noticing, however, that so-called white goods rarely are absolutely white. They have tints, and are made more becoming thereby.

One lesson cannot contain all there is to learn about combinations of color. This knowledge must be acquired little by little—by looking at color harmonies in nature or in manufactured objects which you know are liked by cultivated persons, and by combining colors for yourself until you become familiar with their relations. Until you are perfectly sure of your knowledge, bright colors are to be avoided either singly or in combinations.

XXVI. A CHAPTER ON MATERIALS.

Silk.

Raw silk is the silk as it is reeled from the cocoons.

Gloss silk is the loose silk that envelops the cocoons.

Two or three threads of raw silk, twisted loosely two or four times to the inch, is called tram, and is used as shute or woof. In weaving, the woof has little or no strain upon it, and it fills the warp better by being soft and loose.

The warp, which is also called organzine, is made of the finer and more regular threads of silk tightly twisted so as to produce strength and elasticity in the fabric.

Amongst the animal fibres, the first place must be assigned to silk not only on account of the beauty of the fibre itself, but also because no other textile fabric combines to such a degree the qualities of warmth, brightness, strength, firmness, and durability.

It is the natural production of the silkworm. The eggs are hatched in spring, and the worm or caterpillar grows rapidly, until when fully grown it is about three inches long. It feeds on the leaf of the mulberry tree.

Like most other caterpillars, the silkworm sheds its coat four times, at intervals depending on the quality and quantity of the food. When about to spin its cocoon, it ceases to eat. The silk is produced from two long glands

along the sides of the body. From each gland comes a slender tube. These tubes unite into one near the mouth. In spinning its cocoon, the worm sends out a line of thread about four thousand yards in length. In doing this, it bends its head and body backward and forward until it has entirely surrounded its body with silk, and within this it spins a finer and more delicate silk.

The cocoon is generally completed in about three days, and it is about the size of a pigeon's egg.

When the cocoons are finished by the worms, they are placed in vessels heated with hot water or in an oven which melts the cementing gum and kills the chrysalis. They are then sorted and placed in hot water and stirred until the winder is able to catch a number of loosened ends which she winds together on reels as one thread. This thread then goes to the spinning frame, where the fibres are twisted into the required thickness for weaving.

The value of silk depends on, first, lustre; second, strength; third, fineness. Its appearance under the microscope is an even, round, glasslike fibre; its strength is said to be three times that of linen. No other textile fibre can be spun to such a degree of fineness combined with elasticity.

The silk industry doubtless originated in China, and there is exported from that country nearly seven million dollars' worth of silk annually. When first known to the Romans, silk was so dear that it was sold weight for weight with gold. The high-priced silk fabrics have long come from Italy and France, and the cheaper ones from the United States, India, Persia, and China. The silks of the

United States have greatly improved in quality in recent years.

Silk is said to rank next to wool as a non-conductor of heat.

Varieties of Silk Cloth.

Most manufactured silk materials are known under one of the following names:

Satin, a silk fabric of a thick, close texture, with a glossy face and a dull back; the lustre of the surface is produced partly by the quality of the silk and partly by a method of weaving that reduces the number of crossings of filling and warp. The surface is made still more lustrous by being made to pass over very hot rollers in finishing.

Taffeta, a light-weight, smooth-finished silk, capable of repelling dust. It is frequently used for linings. It may be plain, figured, striped, or plaid.

Changeable silk, in which the warp and woof are of contrasting colors.

Surah, a soft twilled silk with a glossy surface usually of solid color.

Gros Grain, a dull-finished silk with a cord running across from selvage to selvage.

Faille Française, a fabric woven in the same manner as gros grain, but softer and finished with considerable lustre.

Irish Poplins and *Bengalines* belong to this family, although the latter are frequently mixed with either linen or wool.

Ottoman is a very heavy corded silk, used for cloakings.

Damassé (see Damassé in wool), sometimes called brocade.

Foulard, a soft twilled silk frequently printed in contrasting colors.

Moiré or *watered silk.* This effect is produced by subjecting gros grain silk to various conditions of heat, moisture, and pressure.

China and *Japanese silks* are frequently spoken of as wash silks. These are particularly desirable for summer dresses because of the lightness and coolness of the fabric, as well as the fact that they may be washed like gingham.

Crêpe. This is a sheer silk fabric, which, by being exposed to heat and moisture, is given a peculiar crinkled effect; when dyed black, it is used for mourning.

Armure and *Matalassé* (see woolen materials).

Pongee, a soft bleached wash silk made in China, the product of a wild silkworm that feeds on the oak leaf.

Velvet, a silk fabric closely woven and having on one side a thick, short, smooth nap or cut pile. Velvets are sometimes made of all silk, but frequently have a cotton back with silk surface.

Cotton.

Among vegetable fibres, the first place must be assigned to cotton, because it supplies by far the largest amount of material for the clothing of mankind, and can be manufactured into an almost unlimited variety of textures, suited for almost every possible purpose, whether for use or ornament.

The cotton fibre holds an unusual place in the order of vegetable textile fibres, because it is obtained from the plant by the simple process of picking when the boll or seed capsule is open and ripe, while most other vegetable tissues are procured, not from the fruit or seed, but from the stem and branches or leaves of the plant.

Cotton may be described as a vegetable down or wool composed of numberless minute and woolly fibres, which envelop the seeds contained in the boll.

From its great resemblance to sheep's wool, it was called by the ancients "the wool of trees." And although it differs greatly from the animal fleece, the term is still retained. The Germans call it tree wool, and the French give it a name which answers to the English term cotton wool.

Cotton may be classed as of three kinds: the tree, shrub, and herbaceous species. Of these, the most useful is the herbaceous species, which is extensively grown in the southern part of the United States.

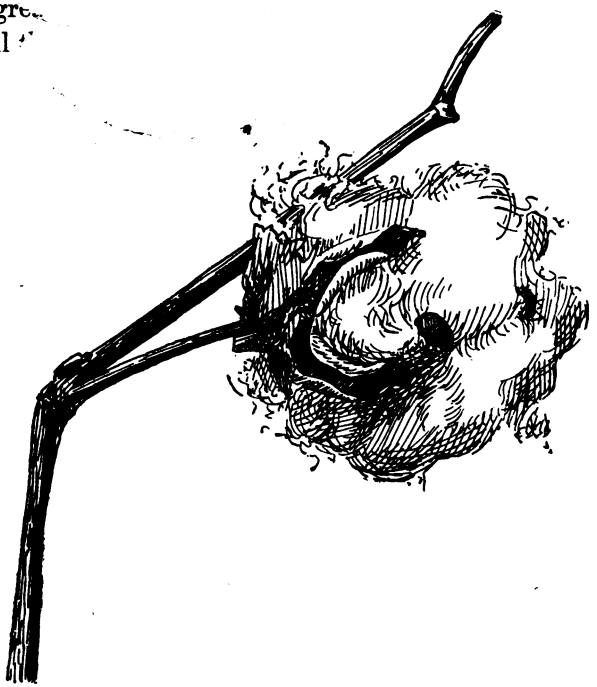
The best variety of the herbaceous species is that known as sea island cotton, which is of long staple, its fibre being much longer than that of any other kind or sort, and of a fine, silky texture.

It is principally cultivated in the low, sandy islands which lie along the coast of Georgia and North and South Carolina.

The herbaceous species of cotton attains a height of from eighteen to twenty-four inches. Its leaves are a dark green color. The blossom, which resembles a hollyhock, is at first a pale yellow color; it then turns white, and then

a pinkish purple, when it falls off, and a pointed triangular pod or boll appears. This gradually increases to the size of a large filbert, and becomes brown as the woolly fruit ripens.

The expansion of the wool causes the boll to burst,



ILL. 106.—Cotton Ready to be Picked.

when there appears a ball of snowy white or yellowish down adhering to the seeds. See Illustration No. 106.

Great care is bestowed in the United States upon the cultivation of the cotton plant. The seed is sown by hand in March, April, or May, according to the season; it begins to blossom in June, the bolls commence to mature in August and September, and when open they resemble the woods in winter after a fall of snow.

The operation of gathering the cotton requires much care. The usual method is to take away the seeds and yield cotton, leaving the empty husk on the bush. The gathering is always performed in fine weather, after the morning dew has disappeared, as any moisture would make the cotton mouldy and cause the oil of the seed to spread over the wool.

ILL. 107.—The Cotton Fibre.

As the cotton does not all ripen at the same time, the pickers have to go over the same plantation many times.

The cotton fibre is not, as it appears to the eye, a solid, cylindrical, gossamer-like hair, but when shown under the microscope, is a flattened, hollow ribbon, twisted several times throughout its length, and with its outer edges indented. See Illustration No. 107.

Owing to this natural twist, cotton is easily distinguished from every other variety of animal and vegetable fibre, and its appearance can be readily detected in any material by the use of the microscope.

After cotton is picked, it is valued according to, first, length of fibre; second, smallness or fineness of diameter;

third, evenness and smoothness; fourth, elasticity; fifth, color; sixth, strength.

The native home of cotton is the East, India and Egypt being the oldest cotton-producing countries. Cotton is now grown in the United States, India, Egypt, and Brazil. Of these four countries, the United States produces by far the greater part. In fact, it is estimated that three-fifths of all the cotton grown in the world is grown in the United States.

Preparing Cotton for the Market.

After the cotton is picked, it is separated from the seeds by being run through the cotton gin; it is then baled and shipped to the manufacturers.

When the cotton reaches the manufacturers, it passes through a number of processes before it is ready for weaving, the first of which is mixing and opening.

Naturally the fibres which compose the different crops, of even the same class of cotton, will vary more or less in character; therefore the only method by which perfect uniformity can be secured is by mixing the bales together and freeing the cotton from as much sand and dirt as possible. For this purpose, machines with rapidly revolving cylinders are employed, which, coming in contact with the cotton, knock it into light flakes, while the impurities drop through bars situated under or facing the beater; it is then ready for the second process, known as scutching.

This is only another form of opening, the scutcher con-

verting the loosened cotton into a continuous roll or fleece. The next process is carding.

In carding, all the fibres which are in a bent or crossed direction are straightened out and placed parallel with each other; they are then called slivers.

The next process is drawing. By this process the slivers are passed to the drawing machine, where all irregularities either in weight or thickness are taken out and several slivers are united into one.

The next process is roving. The roving machine reduces the sliver in thickness by means of revolving spindles, and winds it spirally upon bobbins.

It is then ready for spinning. Here the cotton is twisted sufficiently to stand the strain to which it may be subjected in manufacturing it into cloth.

In making thread, the yarn is doubled and twisted more than for weaving into cloth, as greater strength is required. It is then wound on spools and graded according to the thickness. The finer the thread, the higher the number. Each spool holds two hundred yards.

Cotton Goods.

The principal cotton materials are:

Gingham, a cotton dress goods woven of plain dyed yarn, usually in checks, plaids, or stripes. Varieties of gingham are Madras and zephyr ginghams.

Muslin, a cotton cloth suitable for underwear and sheeting; in some parts of the United States called "cotton cloth." It was originally so called from Mosul, a city on

the banks of the Tigris, which was once the chief centre of its manufacture. Varieties of muslin, many of which derive their names from their place of production, are India muslin, Swiss muslin, Madras muslin, book muslin, ordinary muslin, bleached and unbleached.

Calico, cotton cloth with a figured design printed on one side. The word calico has a queer origin. Many centuries ago the first monarch of the province of Malabar, in Hindustan, gave to one of his chiefs, as a reward for services, all the land within the limit of which a cock crowing could be heard. The town that grew up was called Calicoda, afterwards Calicut, and from this place the first cotton goods were imported.

Cambric, a fine white linen or cotton fabric, first made at Cambria, France. It is frequently printed on one side.

Batiste, a fine all linen or cotton fabric; the French word for lawn. Either printed or white.

Sateen, a cotton fabric with a glossy surface somewhat resembling satin. It is made in light weight for dresses and linings, and in heavier qualities is used for shoe linings and corsets.

Dimity, a sheer, cotton fabric with very fine cords running lengthwise.

Piqué, a heavy cotton fabric that has a corded surface running either lengthwise or crosswise.

Mull, a thin, wiry kind of muslin.

Velveteen, or cotton velvets; a cotton material having a loose nap or pile on the surface.

Corduroy, a cotton material resembling velveteen, but woven with a ribbed effect.

Linen.

Linen is a fabric manufactured from the fibres of flax. The flax plant is a slender annual from two to three feet high and has small pointed leaves placed alternately on the stem. It bears a pale blue flower.

Flax is a native of Egypt, and the fact that the mummies of Egypt were wrapped in linen proves that it is one of the oldest cloths woven.

The flax plant seems to thrive best in a moist climate. It is extensively cultivated in the north of Ireland, France, and Holland.

The seed is sown in March, and the plants, when the seeds are ripe in autumn, are pulled up by the roots. The seeds are used for medicinal purposes, and when pressed, yield linseed oil. The stems of the plant are hollow, and consist internally of a woody portion called shore or boon, and externally, immediately below the bark, of the cellular tissue from which the flax is prepared.

After the plants are pulled, if the object be to use the seeds, they are spread out in the sun to dry, and the seeds are beat out; this is called rippling.

But if the fibrous part be the chief object, the plants are pulled up before they are fully ripe, and they are then tied in bundles and laid to soak in pools or ditches of water; they are then spread on the grass until fermentation takes place in the glutinous matter which binds the fibres together, thus loosening the fibres and setting them free. This process is called retting.

The next process is called breaking or scutching, which consists in beating the stalks with a broad, flat board, in this way separating the woody fibre from the flax.

The flax is now sent to the spinning mill, where it is roughly sorted and heckled or combed into two grades; the coarse or tangled fibres are called tow, and the finer and longer fibres are called line.

The line is again sorted into different qualities, after which it goes through what is called the drawing process. In this the flax is formed into a continuous ribbon or sliver; it is then drawn until the fibres are evenly arranged in a direction parallel to each other.

The flax is then spun into yarn by much the same process as cotton, the only difference being that it is spun while wet, at a temperature of 120° Fahrenheit.

The flax is now ready for weaving; after weaving, it is carefully bleached.

Ireland, Belgium, and Germany are the most extensive linen manufacturing countries.

Linen possesses many advantages over cotton. It is stronger and more enduring. It is smoother and more lustrous. It is cooler and does not absorb and retain moisture so readily. Not having a fuzzy surface, it is capable of a higher gloss or finish when laundered.

Linen Materials.

Some of the best-known linen materials are:

Huckaback, a dicelike pattern very heavy and serviceable, used for toweling.

Crash, often spoken of as Russia crash, very satisfac-

tory for roller towels; twilled crash, not as serviceable as Russia crash, but cheaper.

Damask, a peculiar weave in which the figure has a satin finish.

Art linen is one in which the thread is round and hard twisted.

Holland, a heavy unbleached linen used for upholstering purposes and occasionally for dresses.

Then come the various grades of linen from sheeting down to fine shirting, and again to linen lawn and grass cloth, which is one of the sheerest fabrics woven.

ILL. 108.—The Wool Fibre.

In giving these names, no attempt has been made to touch upon what might be considered novelties, but only those that are considered standard materials have been mentioned.

Wool.

The term wool is used indefinitely, but is most generally applied to the fine hair of the sheep, and is distinguished from hair solely by being curly and serrated, while the latter is straight and stiff.

Animal fibres differ from vegetable fibres in being more flexible, strong, and elastic.

A microscopic examination of wool shows that it is covered by scales closely resembling the scales of a fish; this peculiarity has much to do with its value as a textile fibre,

as it is this which gives it the matting or felting quality so necessary in spinning and weaving.

The skin of the sheep itself was probably the first covering used by man, and, succeeding that, it is most likely that a fabric was made by pounding the fleece in a damp and heated condition, thereby producing a species of felt or cloth similar, to some extent, to the felts used for hats, carpets, and shoes in modern times. Who first discovered the woolen thread itself is not known, but it may be taken for granted that the readiness with which wool can be made into thread would, at an early period, suggest it as a suitable material for sewing and weaving. In the Middle Ages, Flanders was the great headquarters of manufactures in wool. At various dates Flemish wool workers settled in England and taught the English, as they had also taught the French, the art they had carried to great perfection.

The value of wool depends not only on the fineness, but also on the softness, of it. The finest wool is found, as a rule, in the region of the shoulders and neck of the sheep.

The qualities which distinguish high-class wool are: 1. Weight. 2. Color and Lustre. 3. Length. 4. Fineness. 5. Elasticity. 6. Softness. 7. Soundness and evenness of fibre.

Sheep are sheared once a year. They should be washed before shearing, because of the dust and dirt adhering to the yolk or grease in the wool. After shearing, all stained or seedy places should be removed, which leaves the fleece comparatively free from fault.

It is next sorted; this process separates it into lots according to fineness and length of fibre.

It is then washed or scoured by being immersed in a bath of chemicals, suited to remove the grease and dirt not taken out in the first process.

It is then dried, after which it again goes through a process of mixing called blending; this consists in mixing the various qualities of wool, so as to bring about the best results in spinning and weaving.

The several qualities of wool are determined principally by the touch. An indication of soundness is uniformity of growth in the several filaments of which the staple is composed. The larger fibres will, of course, sustain the most weight, but the strength of a sample of wool is not judged by the thickness of individual hairs, but by the strength of the lock.

The process of spinning is much the same as in cotton, but after the fabric is woven it is given a hot, soapy bath and subjected to a heavy pressure, which causes the fibre to felt together and to shrink in both length and width. This shrinkage must be allowed for in the weaving.

If the wool has not been dyed in either the fleece or the yarn, it is now ready for dyeing, after which it is put through various finishing touches, which give it the desired gloss and finish that makes it marketable.

Varieties of Wool.

The principal varieties of wool are:

1. *Merino,* from the Merino or migrating sheep, originally of Spanish origin. It is noted for the weight and fineness of the fleece, and is used universally for fine woolens.

2. *Alpaca,* a species of wool taken from native alpacas or llamas, found in the high tablelands and mountain ranges of the Andes in Chili and Peru.

3. *Mohair.* The wool of the Angora goat is long, abundant, fine, and silky, covering the whole body of the goat.

4. *Cashmere.* The most costly wool in the world is found on the Cashmere goat of the Himalayan Mountains of Central Asia. In the Cashmere goat it is the under coat of wool next to the body that is rich, soft, and silky, almost like down. A fleece weighs but half a pound, but it is very valuable.

Supply and demand.—To-day the population of the world demands two billion seven hundred million pounds of wool per year; of this quantity, Australia supplies one-fourth; Europe, including Russia, one-third; the United States, one-eighth; and following in rank come South America, India, Central Asia, Turkey, China, Canada, and Mexico.

The fact that wool is more impervious to cold than linen or cotton, and that it is a poor conductor of heat, makes it an ideal fabric for underclothing.

The Principal Woolen Cloths.

The manufactured woolen materials of most importance are:

Armure, a material woven so that it has the appearance of small seeds on the thread.

Barre is a name given to a fabric crossed by bars of a contrasting color.

Bayaderé comes from the dancing girls of the East,

whose garments are made from stuffs crossed from selvage to selvage with stripes, and when worn these stripes appear to run around the body.

Béige is the name given to a fine, soft material made of yarns in the natural color; it is light in weight and may be either twilled or plain.

Bouclé, a fabric having a marked curl or loop in the yarn, which is thrown to the surface in weaving. Bouclé is the French for curl.

Bourette. In this we find a lump instead of a curl on the surface. The name comes from Bourrer—to stuff.

Broadcloth is a closely woven fabric, finished with a soft and glossy nap.

Carrean, the same as checks; carrean meaning squares.

Chené, a mottled printed effect.

Checks, patterns which are usually formed by colored threads crossing each other at right angles.

Cheviot, a kind of serge having a coarse twill frequently made of worsted and extremely serviceable.

Challis, a light wool fabric, without twill, resembling mousseline-de-lanie.

Cords, cloths with ribs which run lengthwise of the goods. There are several varieties, such as whipcords, Bedford cords, etc.

Covert Cloths. These are light-weight summer cloths, originally made of natural or undyed wool, resulting in gray, drab, or fawn colors.

Crépon, a crêpe or crinkled effect.

Cashmere, a soft, irregular, twilled material, with the twill only on the right side.

Damassé, a figured fabric showing a contrast in lustre between the groundwork and the figure. The same idea is carried out in linen damask.

Diagonals are loosely woven fabrics with a broad twill running diagonally.

Drap d'été, an all-wool fabric with a twilled surface and a broadcloth back; woven as a twill and finished as a broadcloth.

Double Cloths, two separate fabrics woven and fastened together in the process of weaving.

Etamine, an open-work effect resembling a wool grenadine.

Flannels. This name is given to a loosely woven fabric manufactured in much the same way as cloth. Several varieties of flannel are: French, Saxony, Shaker, and sanitary flannel; the latter is made healthier by retaining the natural qualities of the wool.

Friésé, a fabric in which the pile stands up from the surface in uncut loops. *Friser* is to curl, or, as we say, to friz.

Foulé, a fine, soft serge that has been fulled or milled in the finishing.

Gloria is a silk and wool material without any twill or figure.

Grenadine is a thin, open material frequently made in meshes, checks, or plaids. It is manufactured of silk or wool; sometimes of the two combined. In purchasing these materials, it is very important to see that the warp and woof are even in strength and weight, otherwise they are liable to slip and become displaced in wear.

Henrietta, a material with a silk warp and a wool filling; woven exactly like a cashmere.

Homespun, a material with a rough surface originally made out of undyed yarn, not easily affected by the weather.

Jacquard, a weave named after the inventor of the famous loom; in it every warp thread can be made to move independently of every other, intricate figures being thus produced.

Matalassé, a fabric whose surface is broken into rectangular figures and puffed up so as to resemble quilting; it is woven in both silk and wool.

Melange, a fabric produced from yarn that has either been printed in the wool or dyed of different colors and mixed together before being spun.

Merino is a soft twilled fabric originally made from the wool of the merino sheep; it is heavier than cashmere and twilled on both sides. The number of twills to the inch in merino and other standard fabrics is often used to indicate their quality.

Mohair, a wiry material with a high lustre, manufactured from the hair of various sheep and goats, such as angora, alpaca, and llama; it is a fabric that will not muss or crease easily, and is impervious to dust.

Nun's veiling is a thin, woolen material which is very hard twisted in the thread, consequently very strong and capable of resisting wear.

Poplin, a wool or silk material, or the two combined, in which the cord runs crosswise.

Sateen, a satin-faced wool fabric, the appearance of

which depends on quality of wool and finish rather than weave.

Serge is a compact, closely woven twilled material. It is one of the most serviceable of all woolen goods, principally because it cannot be easily affected by either dampness or dust.

Twill, a more or less raised cord running in a diagonal direction from left to right. Any fabric with this weave may be called a twill.

Plaids. These fabrics derived their name originally from the tartans worn by the Scotch Highlanders; the different clans having each its peculiar tartan or plaid.

Shepherd's plaids, always black and white.

Other Materials Used in Clothing.

While silk, wool, cotton, and linen are the principal textiles used in manufacturing material for clothing, there are a number of other fibres, among which are jute and hemp, which may either be woven separately or combined with one of the above. Jute and hemp are used in manufacturing only very rough textiles.

Out of goat's and camel's hair are manufactured some of the finest and softest woolen goods. China grass, when woven, has much the appearance of silk.

Horsehair is used in making haircloth for interlinings and upholstering purposes. Whalebone is employed for stiffening the seams of dresses.

Paper is used extensively in Japan. Asbestos is used where a fireproof article is needed. Gold, silver, and copper are sometimes combined with other fibres to increase

their value, and occasionally are woven independently as in Cloth of Gold. Skins supply furs and leather.

A Venetian manufacturer makes a dress fabric out of spun glass, while a peculiar kind of stone found in the depths of Siberia is drawn into filaments by a patented process and then woven. Both of these new materials are said to take the most brilliant and delicate dyes and to have a lustre as fine as silk.

XXVII. TOOLS USED IN SEWING.

Pins.

It is most likely that thorns or skewers were originally used as fasteners for garments. Following these, different appliances were used, such as hooks, buckles, and laces, many of which we may suppose were intended for ornaments as well as use.

The pins that have been found in Egyptian and Scandinavian tombs are made of gold, silver, brass, bronze, and iron, many of them twelve inches in length, weighing eight or ten ounces, and having artistically cut heads of precious stones, metal, ivory, or wood.

Pins were first manufactured in England, in the sixteenth century. Iron wire was cut the proper length and filed to a point at one end and twisted into a head at the other. This was a slow process, four or five hundred pins being a good day's work.

The manufacture of cheap and useful pins was introduced in England, in the latter part of the sixteenth century, and Birmingham soon became the centre of this industry. In the United States, pins were not successfully manufactured until after the invention of the Howe machine, in 1832. The English pin is still considered the best in the market.

The present process consists, first, in pulling and cutting the wire, which it does at the rate of one hundred and forty pin lengths or blanks per minute. The machine then seizes each one of the blanks, and a little concave-faced hammer hits the head of each one three taps and "upsets" it to a head, while it grips it into a countersunk hole between its teeth and lays it sideways in a groove; there levers and springs point the blanks with great rapidity. When finished, they fall into a box that is ready to receive them.

They are then polished and passed through a machine which discards all defective ones. After being assorted and stuck into a paper which has been prepared for them, they are ready for the market.

It is said that Spanish pin manufacturers were allowed to sell them only during the Christmas holidays; it therefore became the custom for gentlemen to give the ladies of the family money with which to buy pins at Christmastide. From this custom, the term pin money originated.

Needles.

Needles are of various sorts and kinds; namely, the surgeon's needle, the upholsterer's needle, the cook's needle, the glover's needle (three-cornered at the point), the sail-maker's needle (which has to be pushed through with a steel or leather palm), the broommaker's needle, the weaver's needle (which has an open eye in the hook for picking up broken threads), the milliner's needle, the darning needle (a needle with a long eye, to be obtained in different sizes), the zephyr needle (which has a long eye

and either sharp or blunt point), the bodkin or tape needle, and the ordinary sewing needle, which comes under the head of "sharps," "betweens," and "ground downs," and ranges in size from No. 1, the largest, to No. 12, the smallest.

The common sewing needle is manufactured almost exclusively in England, and requires cast steel wire of superior quality, which must be cut into lengths sufficient to make two at a time.

These pieces are straightened upon an iron table by means of an instrument called a rubbing knife.

The wire is then pointed at each end by automatic machinery provided with a fan and shaft to carry away the steel and grindstone dust.

It is next stamped and grooved, preparatory for eying; the lengths are then divided in two, and after burnishing the eye, they are hardened by being heated in an oven, and subsequently cooled by being plunged into oil.

This rapid cooling of the steel makes it as brittle as glass, and in order to reduce it to a perfect state of elasticity, it has to be again raised to about six hundred degrees and then allowed to cool gradually.

The process of scouring the needles takes about a week. They are mixed with oil, soft soap, and emery powder, wrapped in loose canvas, and placed in a kind of mangle worked by machinery. The scouring process finished, they are washed in hot water and dried in sawdust.

Finally, they are sorted, wrapped, and labeled. For wrapping, purple paper, chemically prepared, is used, because it is supposed to prevent rusting.

Scissors.

Scissors are principally made by hand, but the process of making depends somewhat upon the size. Those over six inches in length are called shears.

Scissors are first shaped from a bar of flat steel; the end for the handle or bow is flattened and punched with a small round hole, which is gradually opened upon the anvil.

The blade and joint of the scissors are then made with hammer and punch.

After softening, the shank and bow are improved by filing. The joint is squared, and the hole bored and fitted for the rivet.

The blades are then ground, smooth-filed, burnished, matched in pairs, and a temporary screw put in and made to walk and talk well, as it is called.

The blades are then bound together with wire, the rivet removed, and they are hardened and tempered. The wire is then removed, and the blades are ground into shape and fitted together ready for use.

Thimbles.

The first thimble seen in England was made in London, about two hundred years ago, by a metal worker named John Lofting. He is said to have acquired a large fortune in the manufacture of this new accessory to the needle worker's art. This tool was at first called a thumb bell, and was worn on the thumb.

These early thimbles were made of either iron or brass, and many specimens of them are preserved as curiosities. The best thimbles used at the present time are made

in France. In China, the ladies of high class use very dainty thimbles. Some are carved from immense pearls, with bands of fine gold, on which are engraved all sorts of fantastic things, the etching of which serves for catching the eye of the needle.

The Queen of Siam has a thimble presented to her by her royal husband. It is made of gold in the form of a lotus bud, the lotus being the royal flower, and is thickly studded with diamonds, so arranged as to form her name and the date of her marriage. This gift was equal to an order that the ladies of Siam should use thimbles.

The shape of the thimble has changed very little. The majority of sewers prefer what is generally known as the closed thimble; while tailors and those who sew very steadily prefer the open thimble (that is, one without a top); and sailors' thimbles take the form of a broad ring, with indentations on one side, and worn, as was the custom in primitive times, on the thumb.

Gold, silver, iron, steel, pearl, celluloid, and sometimes glass are utilized in making thimbles at the present time. In manufacturing thimbles, the metal is rolled out into thin sheets and cut into round disks. These are put upon a die of the desired size and pressed into shape. The edge is then rolled up or otherwise finished, and the semi-perforations, intended to hold the eye of the needle firmly, are made upon the top and part way down the sides. They are then tempered and polished in very much the same manner as needles.

Thimbles made of celluloid are molded.